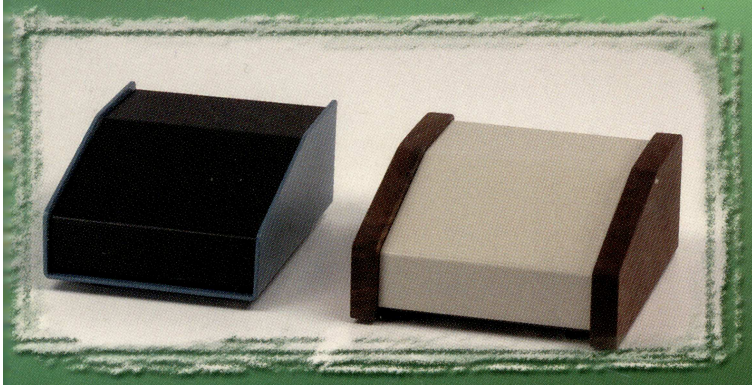
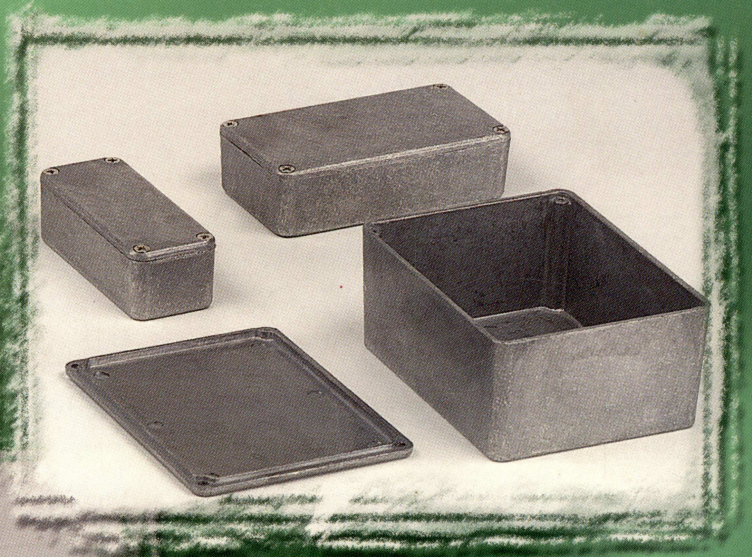
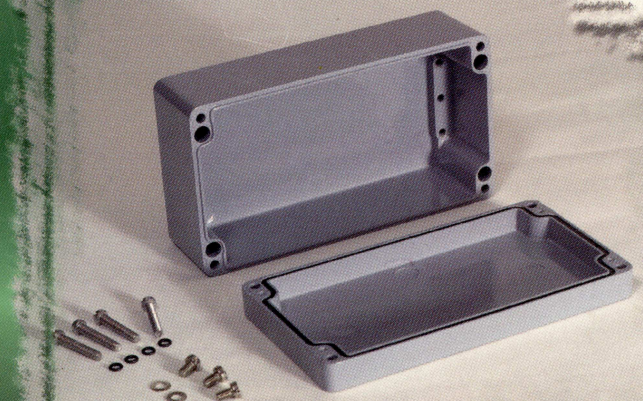
HAMMOND MANUFACTURING™

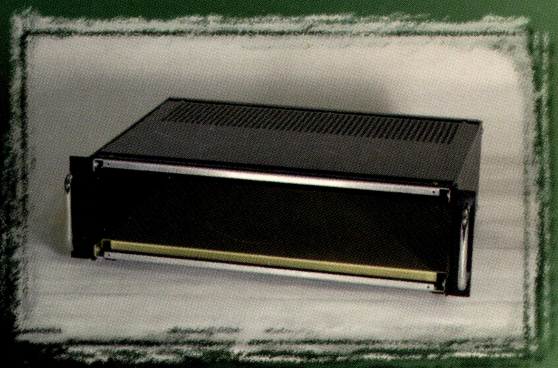
Small Electronic Enclosures

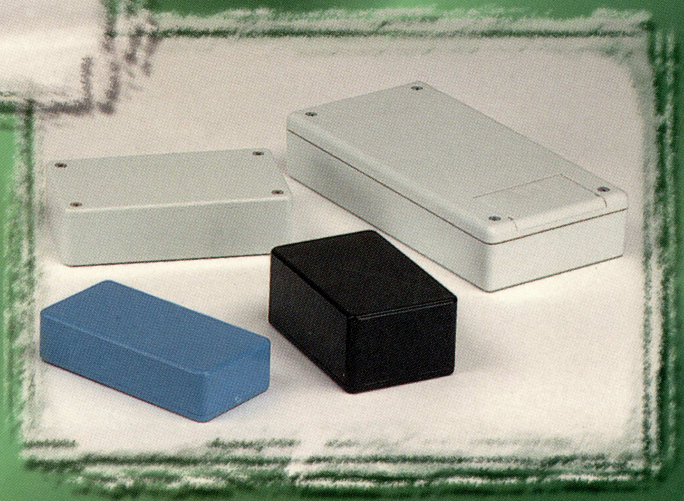






9C-00





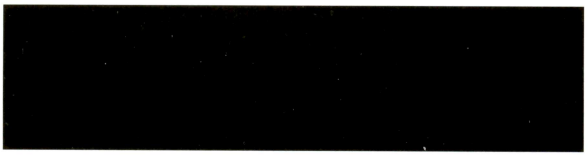
Picture Your Product In Ours...

Product Color Information

Plastic Enclosures:

Beige

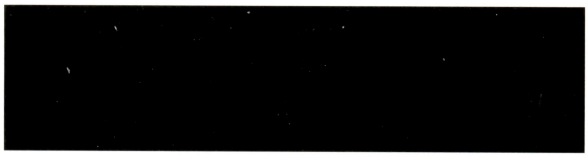
Blue



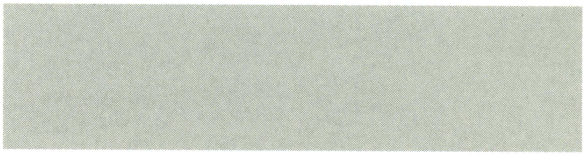
Black

Grey

Painted Diecast Aluminum Enclosures:



Black



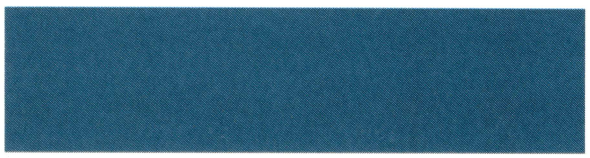
Grey

Watertight - 1590Z Series
Grey (RAL 7001)

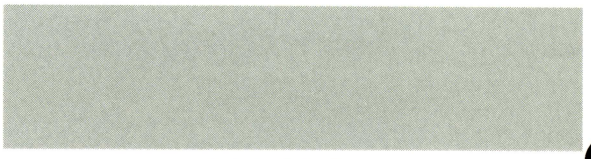
General Purpose Metal Enclosures:

Black

Contempra Grey (RAL 7032)



Blue



ASA 61 Grey

NOTE: This color chart page is included for reference only. It was created with printers ink and gives only a representation of the actual colors. Textures of plastic, paint and lighting will shift appearance of colors. If precise color matching is required please contact us for actual color chip samples.

Plastic - Pages 3-29

Diecast Aluminum - Pages 31-51

General Purpose Metal - Pages 53-71

Accessories, Technical Information & Index - Pages 73-84

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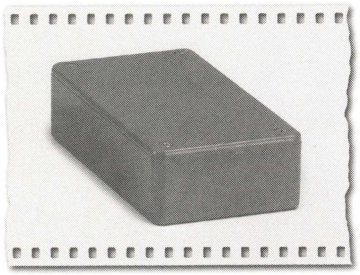
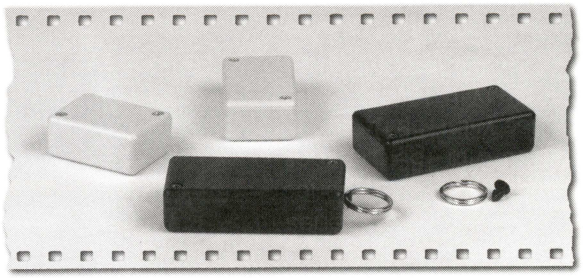
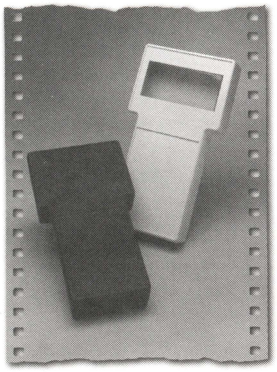
Plastic



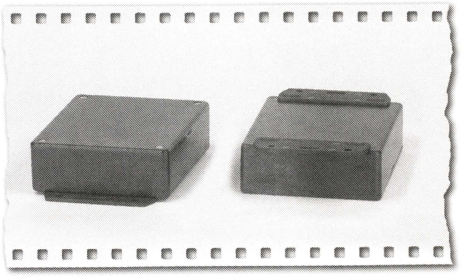
General Purpose
1591 Series
Pages 6-9



Miniature
1551 Series
Pages 4-5

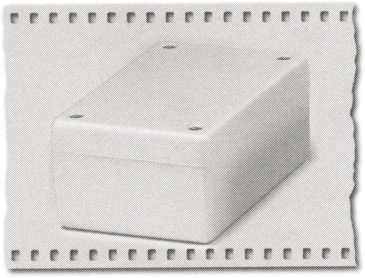


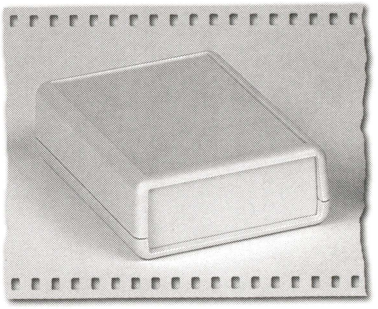
"T"
1592 Series
Pages 12-13



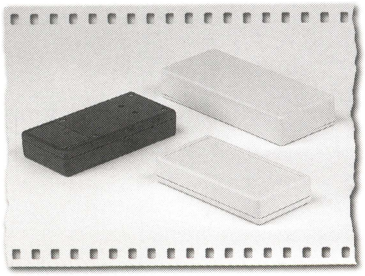
Flanged
1591 Series
Pages 10-11

Heavy Duty
1594 Series
Pages 16-19



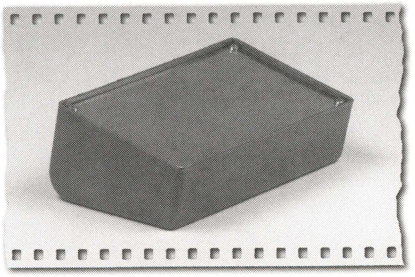


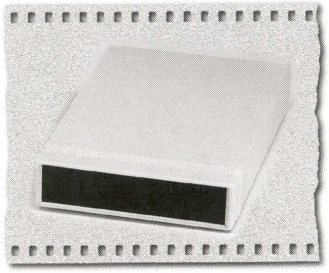
Hand Held
1593 Series
Pages 14-15



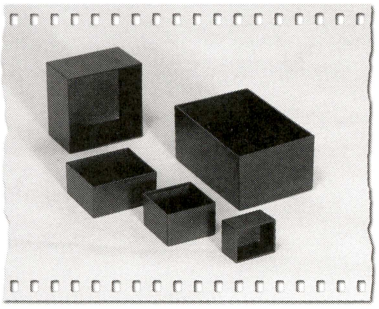
Low Profile
1599 Series
Pages 20-22

Consoles
1595 Series
Page 23





Instrument
1598 Series
Pages 24-28



Potting Boxes
1596 Series
Page 29

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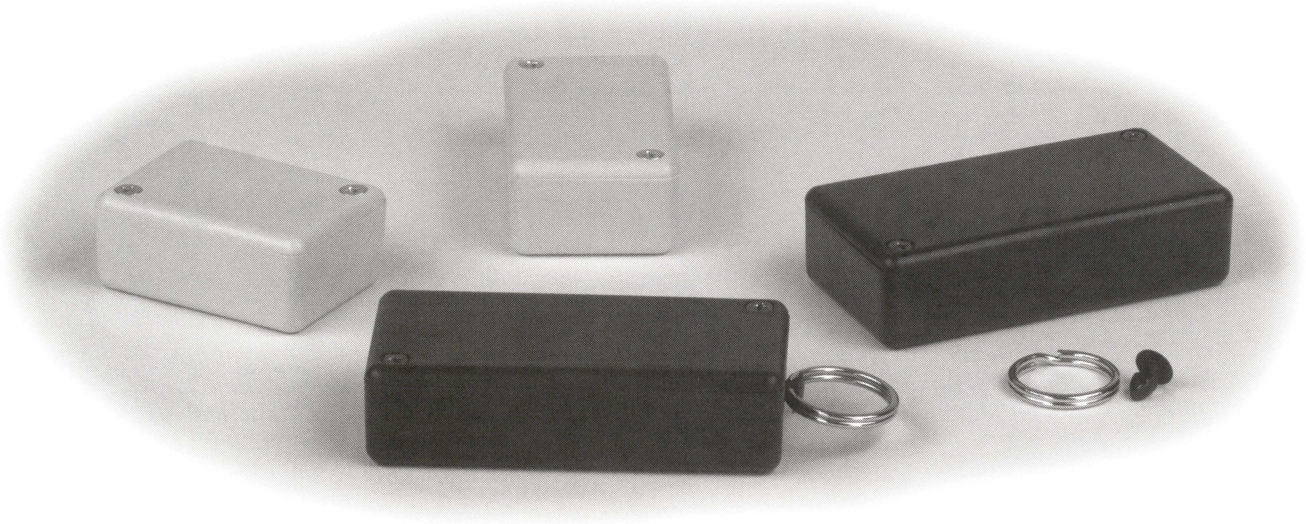
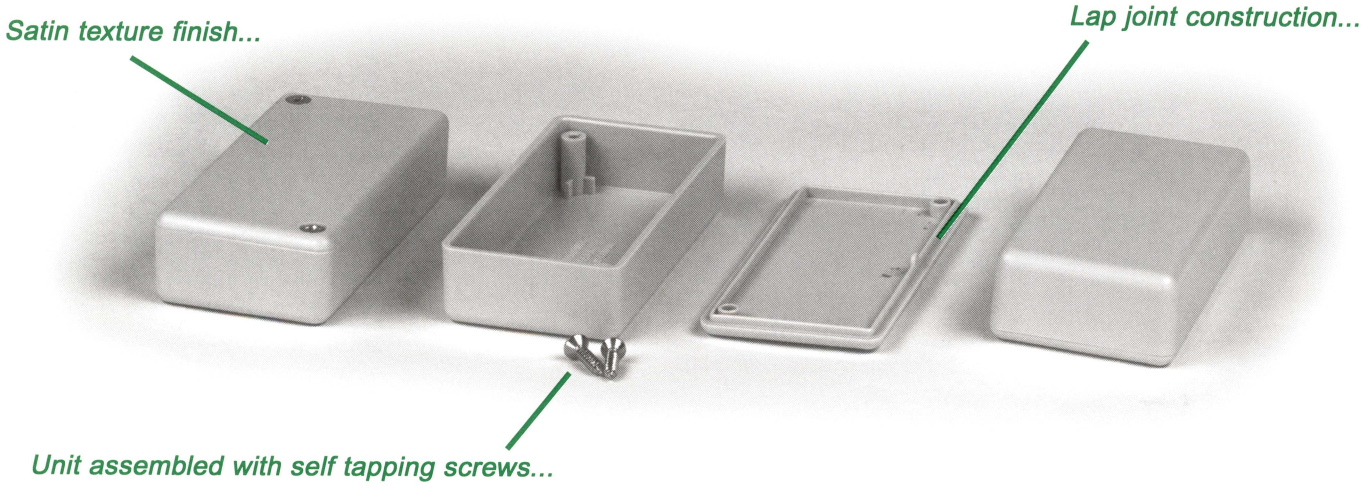
Miniature General Purpose - ABS (1551 Series)

Plastic



KEY FEATURES

- Miniature electronic enclosures, ideally suited for mounting printed circuit boards.
- Molded in a choice of black or grey general purpose ABS plastic.
- 2 P.C. board standoffs molded into interior.
- Two piece lap joint construction provides protection against dust accumulation and splashing water.
- Designed to meet IP54
- Two versions available (with or without keyring kit).
- Models with key ring kit are predrilled in narrow side.



Part Number		Units	Dimensions		
Black	Grey		A	B	C
1551GBK	1551GGY	inch	1.97	1.38	.67
		mm	50	35	17
1551HBK	1551HGY	inch	2.36	1.38	.67
		mm	60	35	17
1551KBK	1551KGY	inch	3.15	1.57	.67
		mm	80	40	17

NOTES: - Assembled height = dimension "C" + 0.12" (3.0 mm)
- Average wall thickness: 0.08" (2.0 mm)

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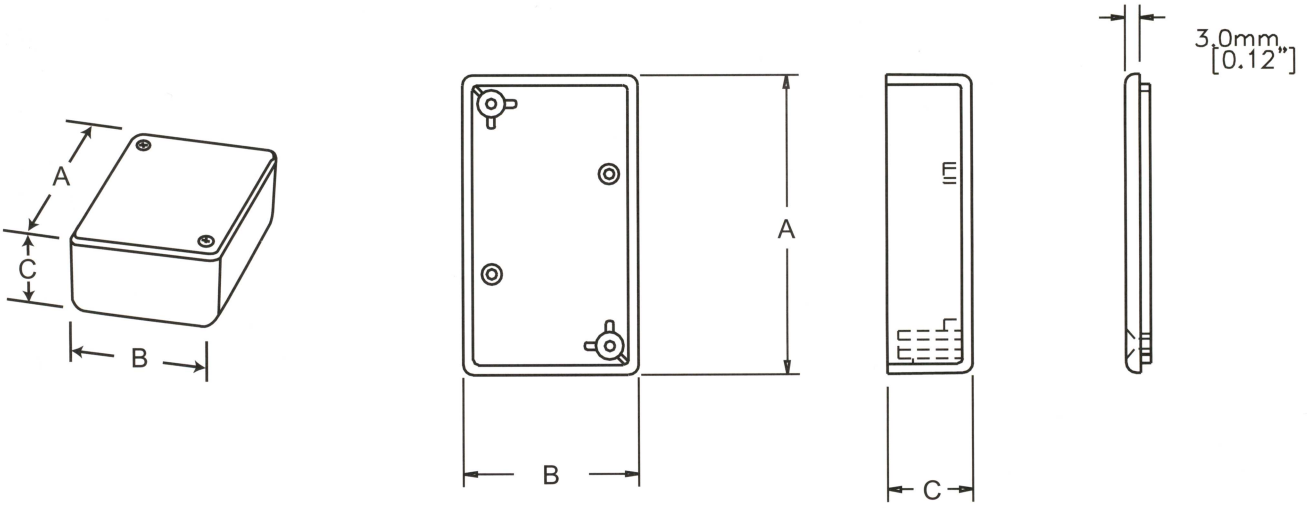
Miniature General Purpose - ABS (1551 Series)

WITH KEY RING KIT

Part Number		Units	Dimensions		
Black	Grey		A	B	C
1551GRBK	1551GRGY	inch	1.97	1.38	.67
		mm	50	35	17
1551HRBK	1551HRGY	inch	2.36	1.38	.67
		mm	60	35	17
1551KRBK	1551KRGY	inch	3.15	1.57	.67
		mm	80	40	17

NOTES: - Assembled height = dimension "C" + 0.12" (3.0 mm)
- Average wall thickness: 0.08" (2.0 mm)



ACCESSORIES

Internal (P.C.B.) Replacement Screws
Self tapping type, #2 x 3/16", nickel plated (used to mount P.C. board).
1551ATS100 - Package of 100

Key Ring Kit
Requires a 0.156" (4 mm) round hole for mounting. Consists of a tough black molded nylon post and a plated 3/4" (19 mm) key ring.
1427KR

Replacement Screws
Self tapping type, #4 x 0.5", nickel plated (used with grey enclosures).
1591TS100 - Package of 100

Replacement Screws
Self tapping type, #4 x 0.5", black anodized (used with black enclosures).
1591TS100BK - Package of 100

For detailed drawings, CAD files or technical bulletins visit our website at:
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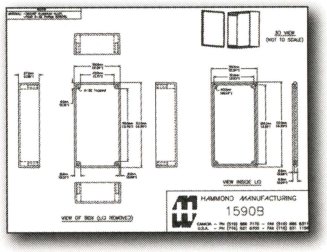

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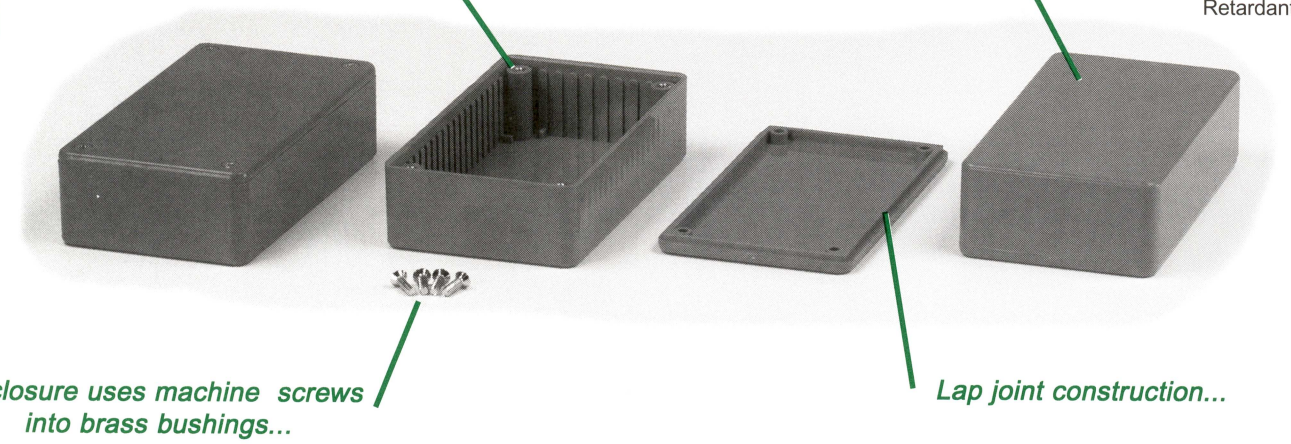
General Purpose - ABS (1591 Series)

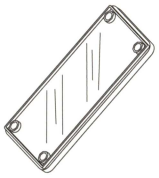

Brass bushings for repetitive assembly and disassembly...
No "gate" marks on bottom...
Enclosure uses machine screws into brass bushings...
Lap joint construction...

Molded in Flame Retardant ABS

OTHER KEY FEATURES

- Electronic instrument enclosures, ideally suited for mounting printed circuit boards.
- Integral card guides molded in, accept 1.5 mm (0.062") P.C. cards. 1591E includes a removable center brace.
- Two piece lap joint construction provides protection against dust accumulation and splashing water.
- Designed to meet IP54
- Molded in flame retardant ABS plastic (carries a UL flammability rating of 94V-O at 1.47 mm (0.06") thickness).
- Lid is secured with M3 x 10 mm philips machine screws, threaded into tapped integral brass bushings.

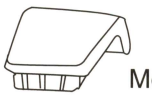
ACCESSORIES



Clear Lids

Stocked in prototype quantities - made of clear plastic (not flame retardant). Lid ONLY.

1591LC - use with 1591L series
1591AC - use with 1591A series
1591BC - use with 1591B series
1591CC - use with 1591C series
1591DC - use with 1591D series
1591EC - use with 1591E series
1591GC - use with 1591G series
1591HC - use with 1591H series
1591SC - use with 1591S series
1591TC - use with 1591T series
1591UC - use with 1591U series
1591VC - use with 1591V series



Belt or Pocket Clip

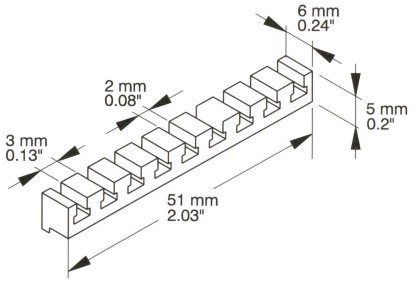
Molded from tough nylon, includes 2 nylon screws and mounting template.
Black - **1599CLIP** Grey - **1599CLIPGY**

Replacement Screws

Machine type, used in flame retardant ABS 1591 series (ie...with brass inserts).
M3 - 0.5 x 10mm
1591MS100 - Package of 100

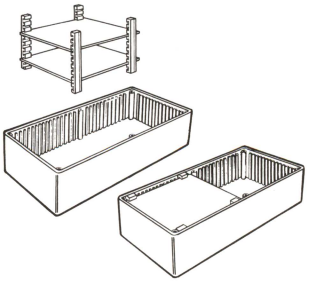
Flange Kits

Mount to either the rear (using glue) or can be attached to the lid using existing lid screws and holes. **See "Accessories Section" for full details!**



P.C. Board Card Adaptors

Allow for horizontal mounting of P.C. board.
1591Z6 - Package of 6
1591Z50 - Package of 50
1591Z100 - Package of 100



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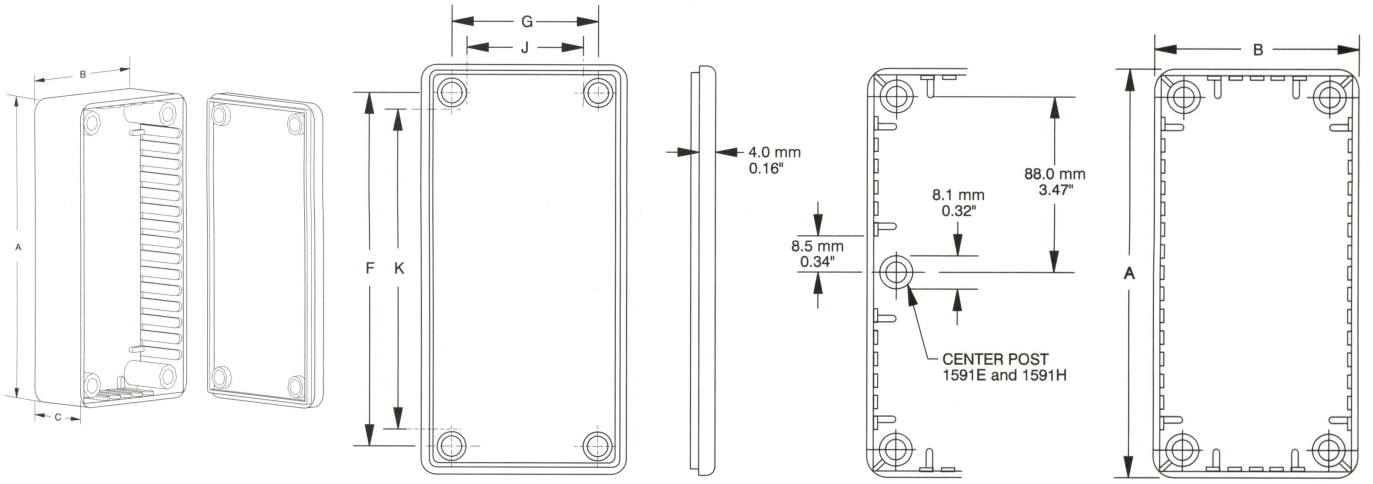
©

General Purpose - ABS (1591 Series)



Lid (Inside & Edge View)

Top View

Part Number					Units	Dimensions					P.C. Card Clearance	
Beige	Black	Blue	Grey	Black Shielded		A	B	C (No Lid)	F	G	J	K
1591LBG	1591LBK	1591LBU	1591LGY	1591RLBK	inch	3.3	2.2	1.4	2.9	1.7	1.4	2.5
					mm	85	56	35	73	44	35	64
1591ABG	1591ABK	1591ABU	1591AGY	1591RABK	inch	3.9	2.0	0.8	3.4	1.4	1.1	3.1
					mm	100	50	21	86	36	29	79
1591BBG	1591BBK	1591BBU	1591BGY	1591RBBK	inch	4.4	2.4	1.1	3.9	1.9	1.6	3.5
					mm	112	62	27	98	48	41	91
1591CBG	1591CBK	1591CBU	1591CGY	1591RCBK	inch	4.7	2.6	1.4	4.2	2.0	1.7	3.9
					mm	120	65	36	106	51	44	99
1591DBG	1591DBK	1591DBU	1591DGY	1591RDBK	inch	5.9	3.2	1.8	5.4	2.6	2.3	5.0
					mm	150	80	46	136	66	59	129
1591EBG	1591EBK	1591EBU	1591EGY	1591REBK	inch	7.5	4.3	2.2	6.9	3.8	3.5	6.6
					mm	191	110	57	176	96	89	170
1591GBG	1591GBK	1591GBU	1591GGY	1591RGBK	inch	4.8	3.7	1.2	4.2	3.1	2.8	3.9
					mm	121	94	30	106	79	73	100
1591HBG	1591HBK	1591HBU	1591HGY	1591RHBK	inch	6.5	2.8	1.0	6.0	2.2	1.9	5.6
					mm	165	71	25	153	56	50	144
1591MBG	1591MBK	1591MBU	1591MGY	1591RMBK	inch	3.3	2.2	0.8	2.8	1.7	1.3	2.5
					mm	85	56	21	71	42	34	63
1591SBG	1591SBK	1591SBU	1591SGY	1591RSBK	inch	4.3	3.2	1.6	3.8	2.7	2.4	3.5
					mm	110	82	40	98	70	61	89
1591TBG	1591TBK	1591TBU	1591TGY	1591RTBK	inch	4.7	3.2	2.2	4.2	2.6	2.3	3.9
					mm	120	80	55	106	66	59	99
1591UBG	1591UBK	1591UBU	1591UGY	1591RUBK	inch	4.7	4.7	2.2	4.2	4.2	3.9	3.9
					mm	120	120	55	106	106	99	99
1591VBG	1591VBK	1591VBU	1591VGY	1591RVBK	inch	4.7	4.7	3.5	4.2	4.2	3.9	3.9
					mm	120	120	90	106	106	99	99

NOTES: - Assembled height = dimension "C" + 0.16" (4.0 mm)
- Average wall thickness: 0.06" (1.5 mm)

For detailed drawings, CAD files or technical bulletins visit our website at:
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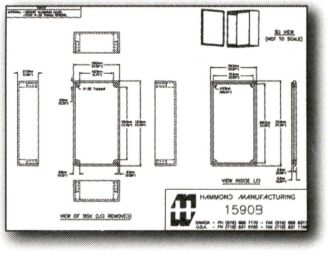

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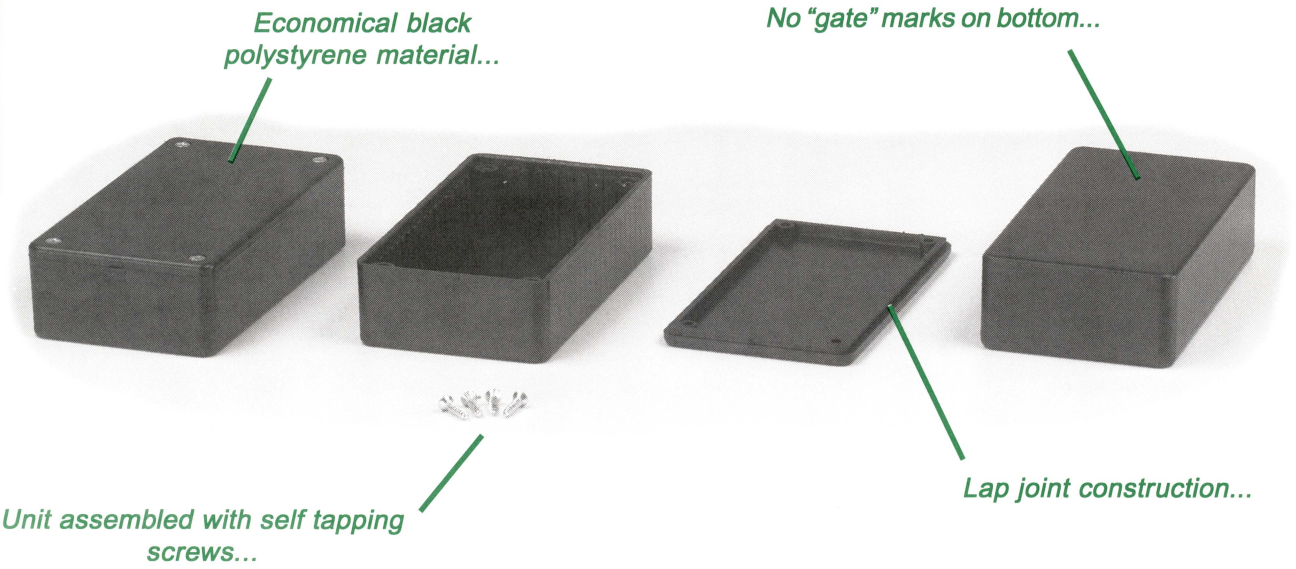
General Purpose - Polystyrene (1591 Series)


Economical black polystyrene material...
No "gate" marks on bottom...
Unit assembled with self tapping screws...
Lap joint construction...

OTHER KEY FEATURES

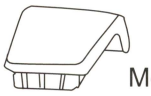
- Electronic instrument enclosures, ideally suited for mounting printed circuit boards.
- Integral card guides molded in, accept 1.5 mm (0.062") P.C. cards. 1591E includes a removable center brace.
- Two piece lap joint construction provides protection against dust accumulation and splashing water.
- Designed to meet IP54
- Molded in economical black polystyrene.
- Lid is secured with self-tapping #4 x 0.5" philips screws.

ACCESSORIES

Clear Lids

Stocked in prototype quantities - made of clear plastic (not flame retardant). Lid ONLY.

1591LC - use with 1591L series
1591AC - use with 1591A series
1591BC - use with 1591B series
1591CC - use with 1591C series
1591DC - use with 1591D series
1591EC - use with 1591E series
1591GC - use with 1591G series
1591HC - use with 1591H series
1591SC - use with 1591S series
1591TC - use with 1591T series
1591UC - use with 1591U series
1591VC - use with 1591V series



Belt or Pocket Clip

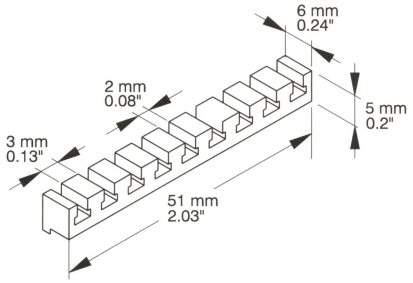
Molded from tough black nylon, includes 2 nylon screws and mounting template.
1599CLIP

Replacement Screws

Self tapping type, used in polystyrene 1591 series (ie...no brass inserts) black anodized, #4 x 0.5"
1591TS100BK - Package of 100

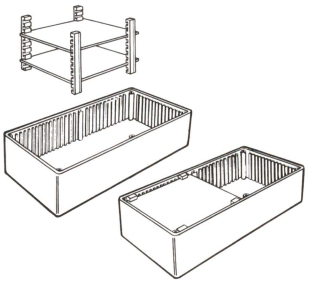
Flange Kits

Mount to either the rear (using glue) or can be attached to the lid using existing lid screws and holes. See "Accessories Section" for full details!



P.C. Board Card Adaptors

Allow for horizontal mounting of P.C. board.
1591Z6 - Package of 6
1591Z50 - Package of 50
1591Z100 - Package of 100



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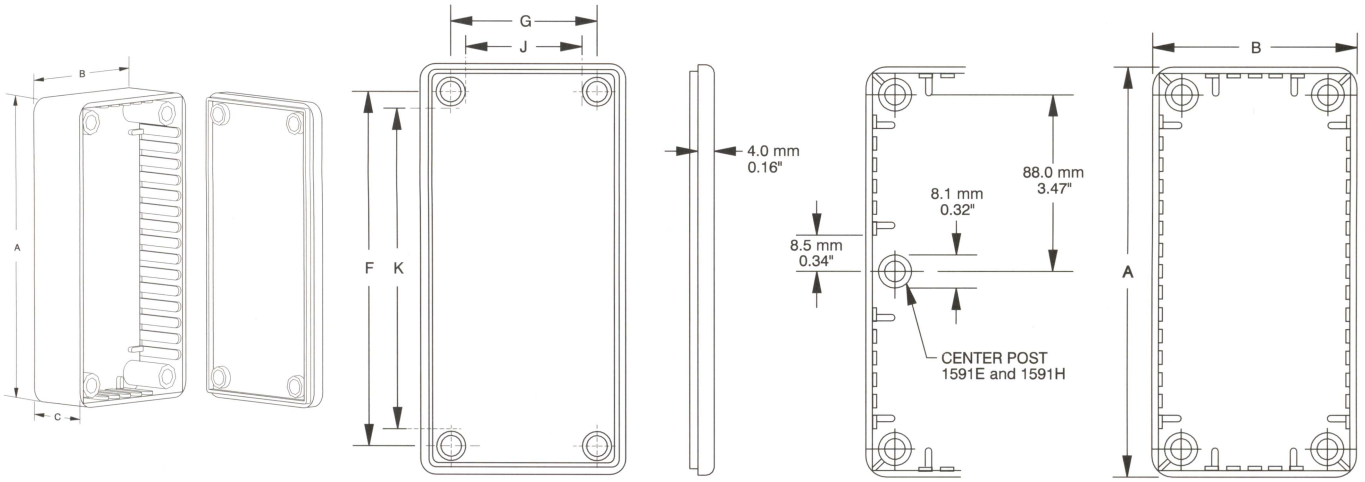
General Purpose - Polystyrene (1591 Series)



Lid (Inside & Edge View)

Top View

Part Number	Units	Dimensions					P.C. Card Clearance	
Black Styrene		A	B	C (No Lid)	F	G	J	K
1591LSBK	inch	3.3	2.2	1.4	2.9	1.7	1.4	2.5
	mm	85	56	35	73	44	35	64
1591ASBK	inch	3.9	2.0	0.8	3.4	1.4	1.1	3.1
	mm	100	50	21	86	36	29	79
1591BSBK	inch	4.4	2.4	1.1	3.9	1.9	1.6	3.5
	mm	112	62	27	98	48	41	91
1591CSBK	inch	4.7	2.6	1.4	4.2	2.0	1.7	3.9
	mm	120	65	36	106	51	44	99
1591DSBK	inch	5.9	3.2	1.8	5.4	2.6	2.3	5.0
	mm	150	80	46	136	66	59	129
1591ESBK	inch	7.5	4.3	2.2	6.9	3.8	3.5	6.6
	mm	191	110	57	176	96	89	170
1591GSBK	inch	4.8	3.7	1.2	4.2	3.1	2.8	3.9
	mm	121	94	30	106	79	73	100
1591HSBK	inch	6.5	2.8	1.0	6.0	2.2	1.9	5.6
	mm	165	71	25	153	56	50	144
1591MSBK	inch	3.3	2.2	0.8	2.8	1.7	1.3	2.5
	mm	85	56	21	71	42	34	63
1591SSBK	inch	4.3	3.2	1.6	3.8	2.7	2.4	3.5
	mm	110	82	40	98	70	61	89
1591TSBK	inch	4.7	3.2	2.2	4.2	2.6	2.3	3.9
	mm	120	80	55	106	66	59	99
1591USBK	inch	4.7	4.7	2.2	4.2	4.2	3.9	3.9
	mm	120	120	55	106	106	99	99
1591VSBK	inch	4.7	4.7	3.5	4.2	4.2	3.9	3.9
	mm	120	120	90	106	106	99	99

NOTES: - Assembled height = dimension "C" + 0.16" (4.0 mm)
- Average wall thickness: 0.08" (2.0 mm)

For detailed drawings, CAD files or technical bulletins visit our website at:
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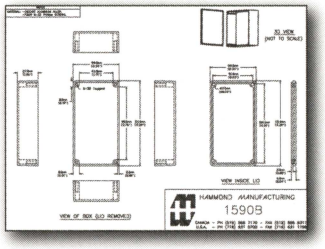

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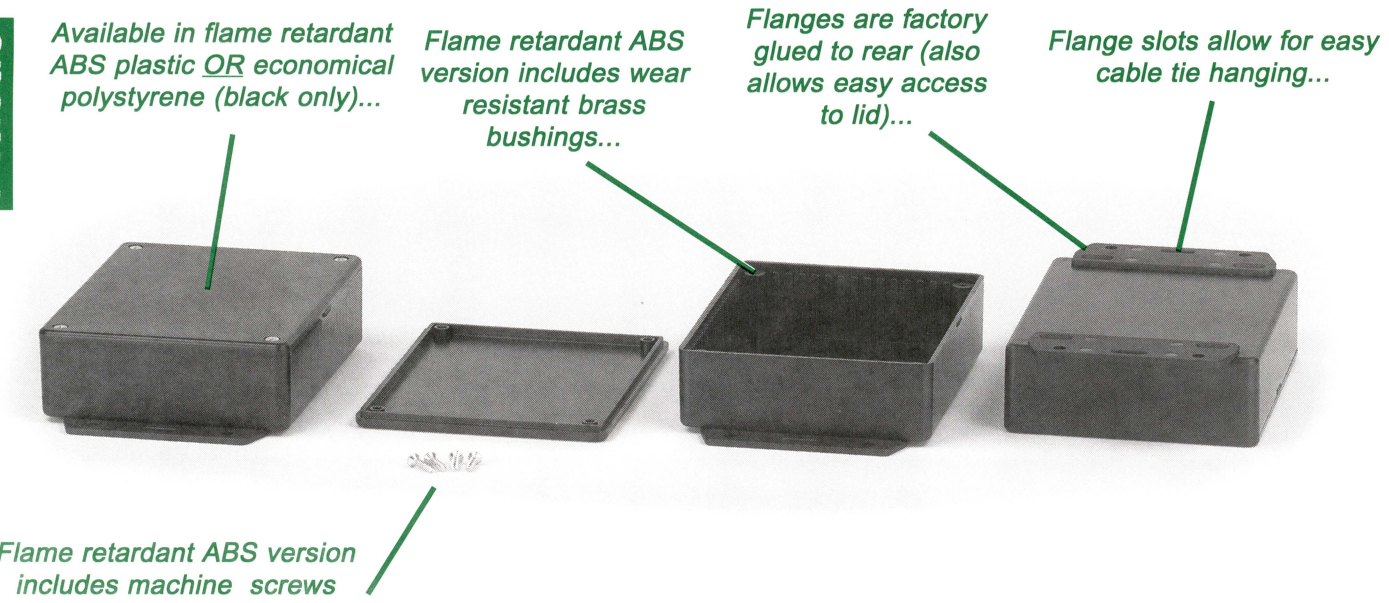
General Purpose - Flanged (1591 Series)

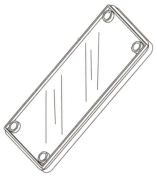
Plastic


Available in flame retardant ABS plastic OR economical polystyrene (black only)...
Flame retardant ABS version includes wear resistant brass bushings...
Flanges are factory glued to rear (also allows easy access to lid)...
Flange slots allow for easy cable tie hanging...
Flame retardant ABS version includes machine screws (polystyrene are self tapping)...

OTHER KEY FEATURES

- Electronic instrument enclosures, ideally suited for mounting printed circuit boards.
- Integral card guides molded in, accept 1.5 mm (0.062") P.C. cards. 1591E includes a removable center brace.
- Two piece lap joint construction provides protection against dust accumulation and splashing water.
- Designed to meet IP54
- Available in either flame retardant black ABS plastic (carries a UL flammability rating of 94V-O at 1.47 mm (0.06") thickness) or economical black polystyrene.
- Flame retardant ABS version's lid is secured with M3 x 10 mm philips machine screws, threaded into tapped integral brass bushings.
- Polystyrene version's lid is secured with self-tapping #4 x 0.5" philips screws.

ACCESSORIES



Clear Lids

Stocked in prototype quantities - made of clear plastic (not flame retardant). Lid ONLY.

1591LC - use with 1591L series
1591AC - use with 1591A series
1591BC - use with 1591B series
1591CC - use with 1591C series
1591DC - use with 1591D series
1591EC - use with 1591E series
1591GC - use with 1591G series
1591HC - use with 1591H series
1591SC - use with 1591S series
1591TC - use with 1591T series
1591UC - use with 1591U series
1591VC - use with 1591V series

Replacement Screws

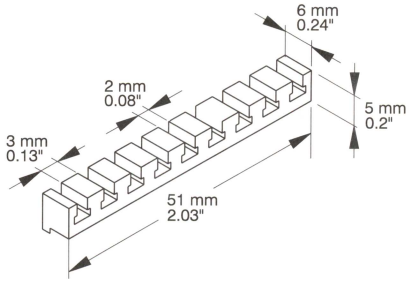
Machine type, used in flame retardant ABS 1591 series (ie...with brass inserts). M3 - 0.5 x 10mm

1591MS100 - Package of 100

Replacement Screws

Self tapping type, used in polystyrene 1591 series (ie...no brass inserts) black anodized, #4 x 0.5"

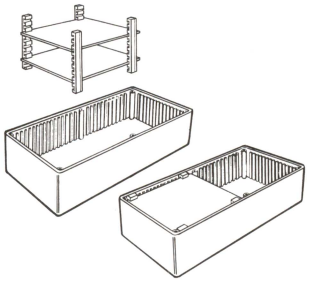
1591TS100BK - Package of 100



P.C. Board Card Adaptors

Allow for horizontal mounting of P.C. board.

1591Z6 - Package of 6
1591Z50 - Package of 50
1591Z100 - Package of 100



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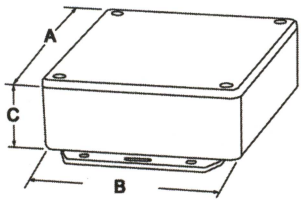
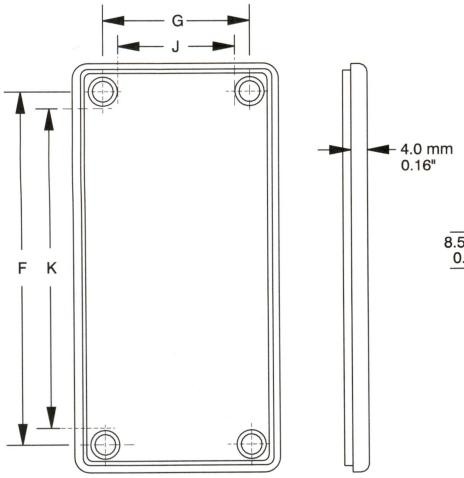
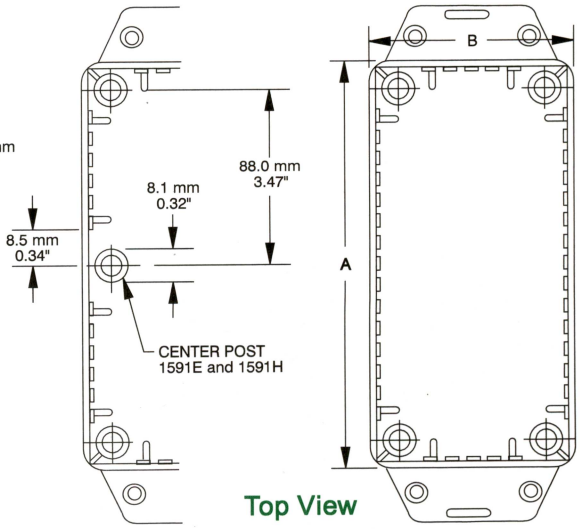
General Purpose - Flanged (1591 Series)





Lid (Inside & Edge View)



Top View

Part Number		Units	Dimensions					P.C. Card Clearance	
Black ABS with flange	Black Styrene with flange		A	B	C (No Lid)	F	G	J	K
1591LFBK	1591LFSBK	inch	3.3	2.2	1.4	2.9	1.7	1.4	2.5
		mm	85	56	35	73	44	35	64
1591AFBK	1591AFSBK	inch	3.9	2.0	0.8	3.4	1.4	1.1	3.1
		mm	100	50	21	86	36	29	79
1591BFBK	1591BFSBK	inch	4.4	2.4	1.1	3.9	1.9	1.6	3.5
		mm	112	62	27	98	48	41	91
1591CFBK	1591CFSBK	inch	4.7	2.6	1.4	4.2	2.0	1.7	3.9
		mm	120	65	36	106	51	44	99
1591DFBK	1591DFSBK	inch	5.9	3.2	1.8	5.4	2.6	2.3	5.0
		mm	150	80	46	136	66	59	129
1591EFBK	1591EFSBK	inch	7.5	4.3	2.2	6.9	3.8	3.5	6.6
		mm	191	110	57	176	96	89	170
1591GFBK	1591GFSBK	inch	4.8	3.7	1.2	4.2	3.1	2.8	3.9
		mm	121	94	30	106	79	73	100
1591HFBK	1591HFSBK	inch	6.5	2.8	1.0	6.0	2.2	1.9	5.6
		mm	165	71	25	153	56	50	144
1591MFBK	1591MFSBK	inch	3.3	2.2	0.8	2.8	1.7	1.3	2.5
		mm	85	56	21	71	42	34	63
1591SFBK	1591SFSBK	inch	4.3	3.2	1.6	3.8	2.7	2.4	3.5
		mm	110	82	40	98	70	61	89
1591TFBK	1591TFSBK	inch	4.7	3.2	2.2	4.2	2.6	2.3	3.9
		mm	120	80	55	106	66	59	99
1591UFBK	1591UFSBK	inch	4.7	4.7	2.2	4.2	4.2	3.9	3.9
		mm	120	120	55	106	106	99	99
1591VFBK	1591VFSBK	inch	4.7	4.7	3.5	4.2	4.2	3.9	3.9
		mm	120	120	90	106	106	99	99

NOTES: - Assembled height = dimension "C" + 0.16" (4.0 mm)
- Average wall thickness: Flame retardant ABS=0.06" (1.5 mm), Polystyrene = 0.08" (2.0 mm)

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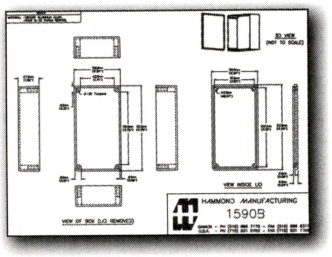


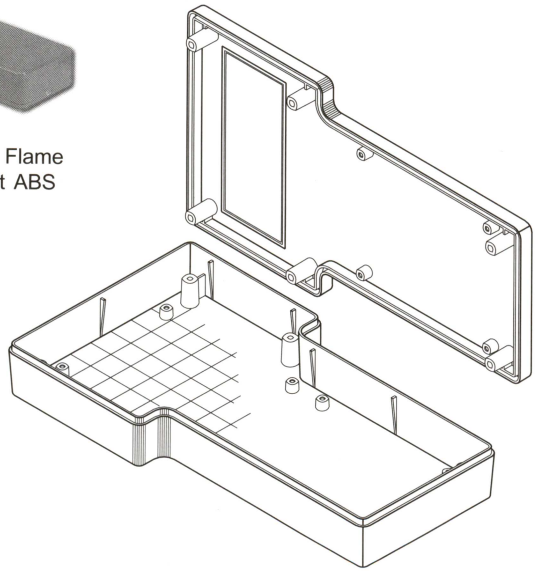
Hand Held Display (1592 Series)

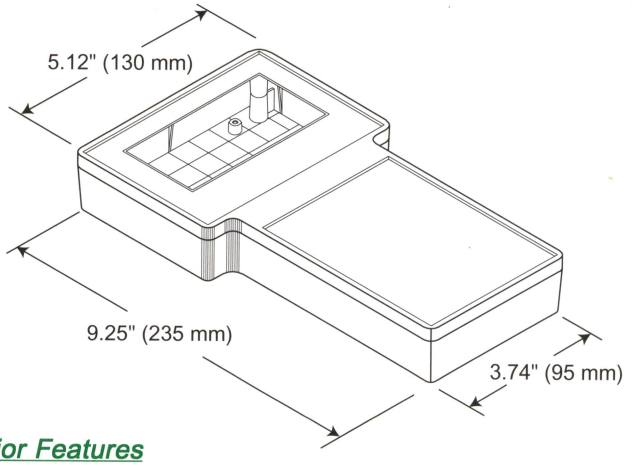
Plastic

KEY FEATURES

- Ergonomically designed for a comfortable fit into the user's hand.
- Perfect for instrument or mobile data enclosures requiring a keypad and display.
- Available with either a solid display area (1592ETSD) or a versatile opening with a clear lens (1592ETCD).
- Molded in flame retardant ABS plastic, choice of black or grey.
- 1592ETSD offers a solid display area 122 mm x 85 mm (4.8" x 3.4") that will accommodate display boards up to 118 mm x 60 mm (4.6" x 2.37").
- 1592ETCD offers a clear polycarbonate lens 102 mm x 45 mm (4.0" x 1.77") and a plain mylar mask kit allowing for installation of a wide variety of display boards with the protection of the clear lens and dressed by the mylar frame. The lens fits snugly into the case and provides protection from dirt and dust.
- The back of the case has been designed to accept a magnetic strip or velcro mounting tab (see accessories).
- The display area has been insert tooled in order to provide the capability of custom molding a low-cost display area to specific requirements.

Molded in Flame Retardant ABS





Key Pad Area Features

Has been designed to accept membrane keypads up to 87 mm x 119 mm (3.4" x 4.68"). Insert tooled in order to provide the capability of custom molding a low-cost display area to specific requirements.

Rubber Feet Features

Designed in order to fit into the recessed mounting screw areas to provide both a standoff from the work surface as well as additional sealing from dirt and moisture.

Interior Features

A total of eight mounting bosses have been provided in order to facilitate the use of PC cards and other components. These bosses have been strategically placed to provide maximum usable space. A light crosshatch has been provided in order to facilitate layout design. The interior of the lid of the 1592ET has been designed with mounting bosses to facilitate use of displays and other components.

Gasket Features

The 1592ET has been designed with tongue and groove construction which will accept gaskets, available as accessory part 1592ETG. With proper sealing of the display lens, other modifications and the use of the gasket, the unit will provide protection from dirt, dust and liquids.

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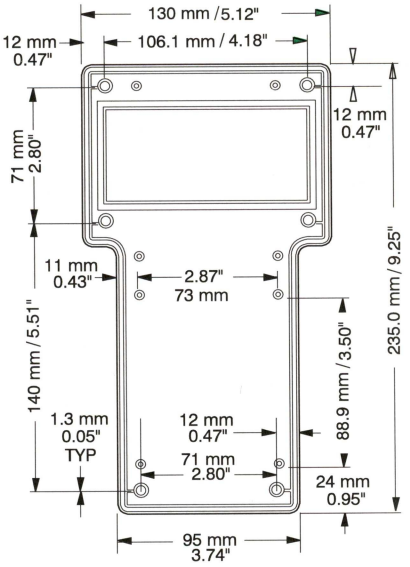
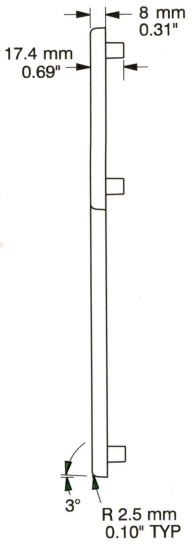
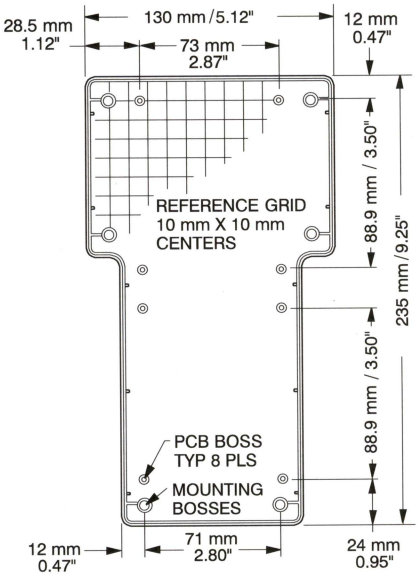
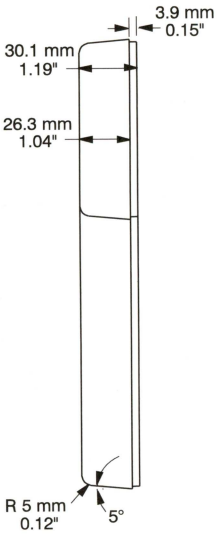
Lid (Inside & Edge View)





Base (Inside & Edge View)



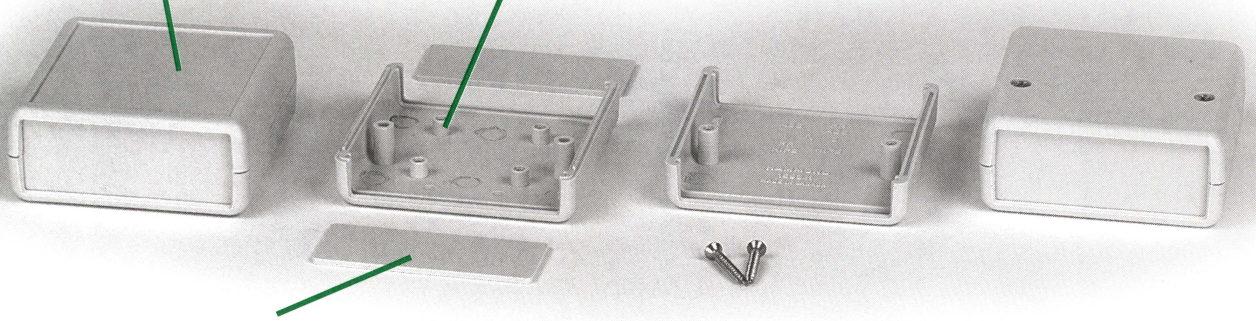


Part Number	Color	Description
1592ETSDGY	Grey	Grey case with solid display area
1592ETSDBK	Black	Black case with solid display area
1592RETSDBK	Black	Black shielded case with solid display area
1592ETCDGY	Grey	Grey case with open dispay insert and clear polycarbonate lens kit
1592ETCDBK	Black	Black case with open display insert and clear polycarbonate lens kit
1592ETG		Gasket kit with .76m (30") of gasket (for one unit)
1592ETRF		Rubber feet (package of 6)
1592ETM		Magnetic strip 7.62 cm (3") square
1592ETV		Velcro mounting tab
1594MS100		M3 - 0.5 x 18mm countersunk flat head replacement screws

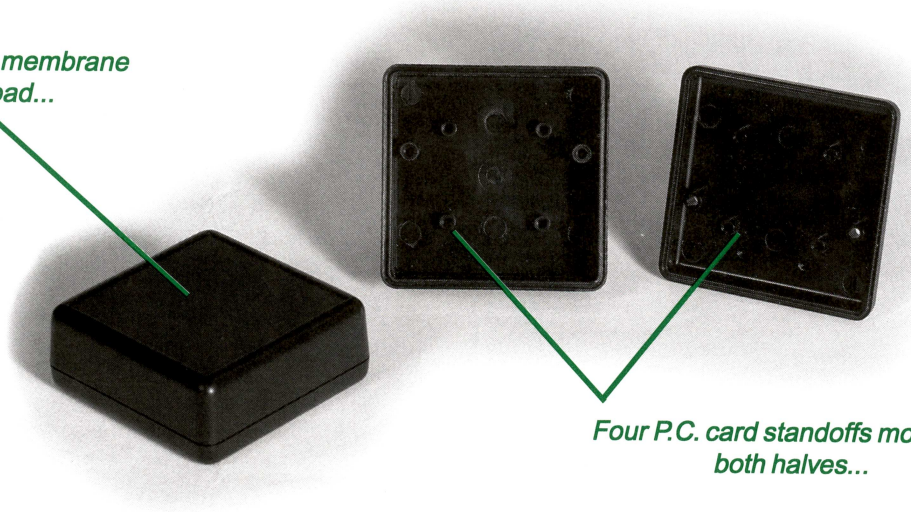
Hand Held Instrument (1593 Series)

Plastic

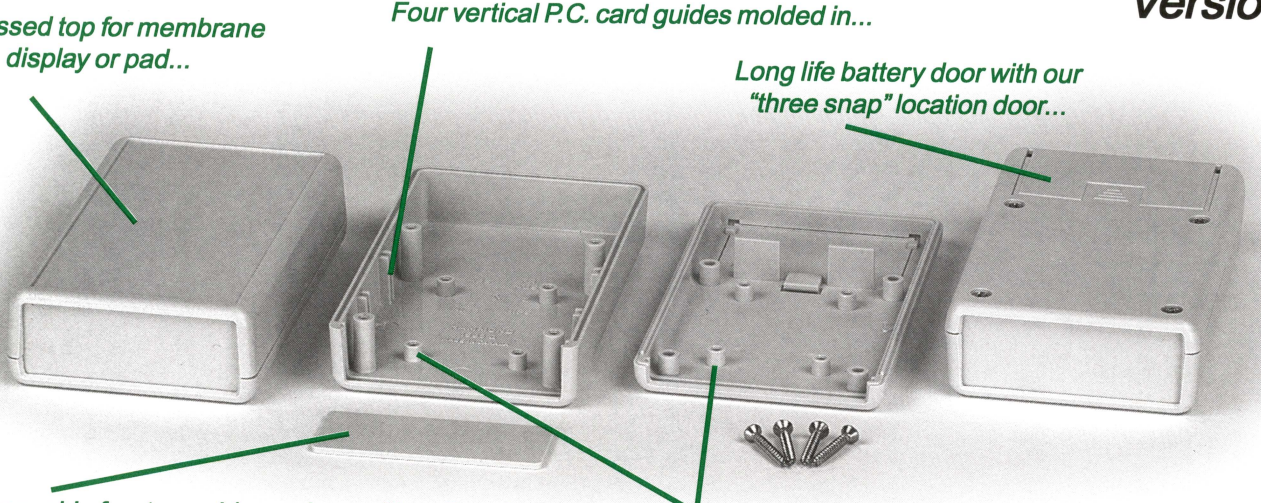
Version A


Recessed top for membrane display or pad...
Four P.C. card standoffs molded in bottom...
Removable front & rear panels for easy modification (or replace with optional IR panel) - sized to accept most popular connectors...

Version B



Version C


Recessed top for membrane display or pad...
Four vertical P.C. card guides molded in...
Long life battery door with our "three snap" location door...
Removable front panel (or replace with optional IR panel) for easy modification - sized to accept most popular connectors...
P.C. card standoffs molded in both halves...

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Hand Held Instrument (1593 Series)

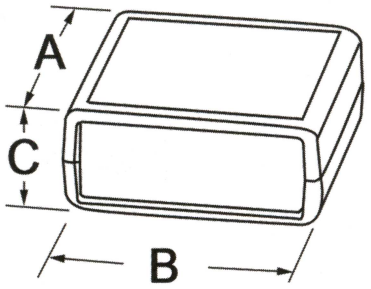
KEY FEATURES

- Electronic instrument enclosures, ideally suited for mounting printed circuit boards.
- Ergonomically designed for a comfortable fit into the user's hand.
- Two piece lap joint construction provides protection against dust accumulation and splashing water.
- Molded in a choice of black or grey general purpose ABS plastic.
- Unit is secured with self tapping screws.

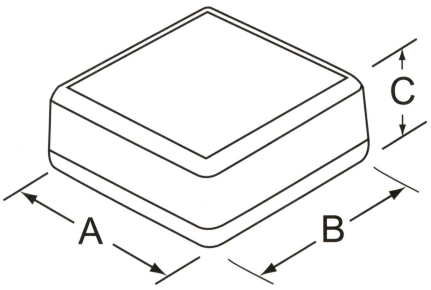
Part Number		Units	Dimensions			Battery Compartment	Front Open (w/panel)	Rear Open (w/panel)	Reference Version
Black	Grey		A	B	C				
1593KBK	1593KGY	inch	2.6	2.6	1.1	N	Y	Y	A
		mm	66	66	28				
1593JBK	1593JGY	inch	2.6	2.6	1.1	N	N	N	B
		mm	66	66	28				
1593SBK	1593SGY	inch	3.6	2.6	.83	Y*	Y	N	C
		mm	92	66	21				
1593PBK	1593PGY	inch	3.6	2.6	1.1	Y	Y	N	C
		mm	92	66	28				
1593TBK	1593TGY	inch	4.4	2.6	.83	Y*	Y	N	C
		mm	112	66	21				
1593QBK	1593QGY	inch	4.4	2.6	1.1	Y	Y	N	C
		mm	112	66	28				
1593YBK	1593YGY	inch	5.5	2.6	1.1	Y	Y	N	C
		mm	140	66	28				
1593XBK	1593XGY	inch	5.5	2.6	1.1	N	Y	Y	A
		mm	140	66	28				

NOTES: * Due to their low profile design, the 1593S & 1593T models will not accept batteries larger than AAA.

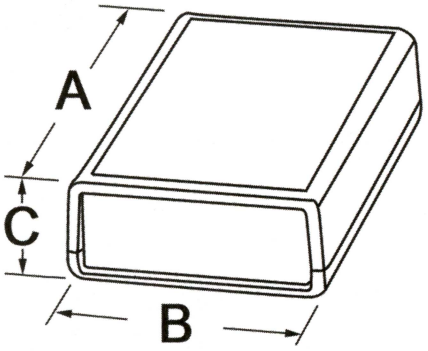
Version A



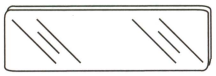
Version B



Version C



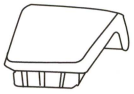
ACCESSORIES



Infrared Panel

Optional panels for 1593 series (except 1593S & 1593T)
Package of 10. **1593PIR10**

Optional panels for 1593S &1593T series only
Package of 10. **1593SIR10**



Belt or Pocket Clip

Molded from tough nylon, includes 2 nylon screws and mounting template.
Black - **1599CLIP** Grey - **1599CLIPGY**

Replacement Screws

Self tapping, oval head type, #4 x 0.625" (15.9 mm)
1593MS100 - Package of 100

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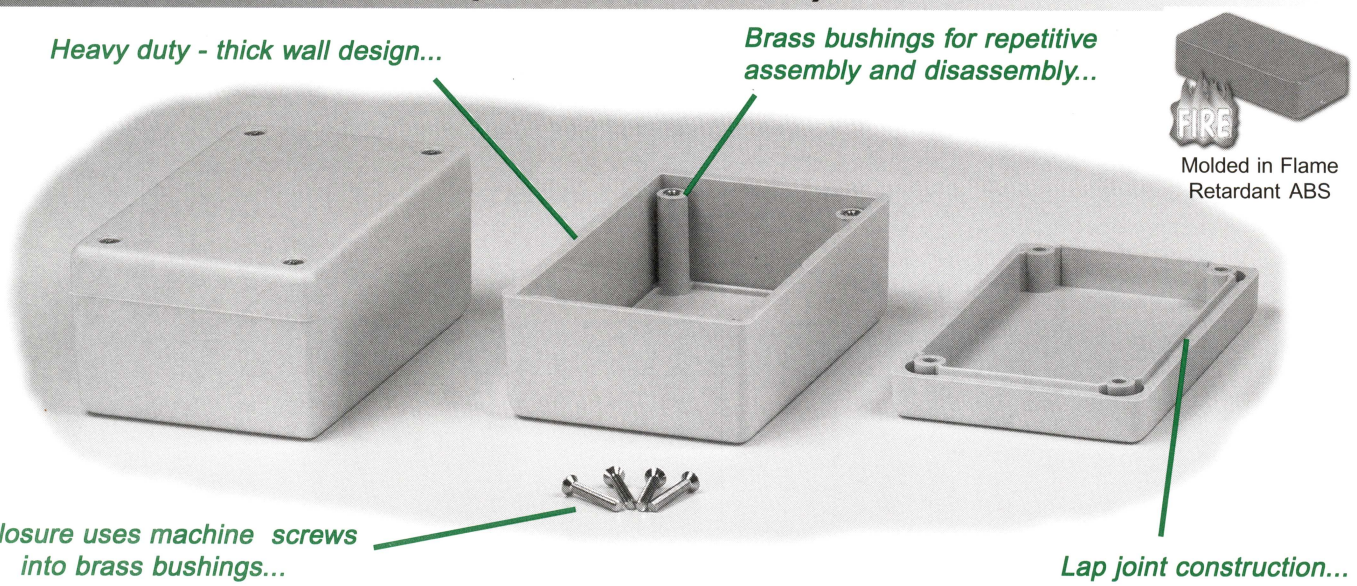
Heavy Duty - ABS (1594 Series)

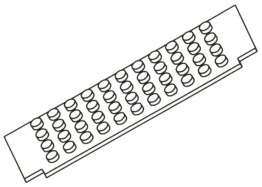
Plastic


Heavy duty - thick wall design...
Brass bushings for repetitive assembly and disassembly...
FIRE
Molded in Flame Retardant ABS
Enclosure uses machine screws into brass bushings...
Lap joint construction...

OTHER KEY FEATURES

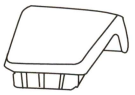
- Rugged electronic instrument enclosures, ideally suited for mounting printed circuit boards. Heavy duty with an average wall thickness of .13" (3.3 mm)
- Molded in flame retardant ABS plastic (carries a UL flammability rating of 94V-O at 1.47 mm (0.06") thickness)
- Designed to meet IP54, watertight version meets IP65.
- Countersunk lid is secured with four M3 x 0.5" x 0.71" (18 mm) philips machine screws threaded into tapped integral brass bushings.
- Stocked in black and grey with matte textured finish.

ACCESSORIES



P.C. Board Card Guides

Allow for vertical or horizontal mounting of P.C. board. Each part number contains either 25 or 5 "sets". Each "set" includes four adaptors (2 - for the short side, 2 - for the long side). Molded in black ABS.



Belt or Pocket Clip

Molded from tough nylon, includes 2 nylon screws and mounting template.
Black - **1599CLIP** Grey - **1599CLIPGY**

Replacement Screws

Machine type, used in flame retardant ABS 1594 series (ie...with brass inserts).
M3 - 0.5 x 18 mm
1594MS100 - Package of 100
1594WMS100 - Package of 100 (for watertight version).

Use with part number	Accessories					
	PC Card Guides		Belt or Pocket Clip		Replacement screws (100 per bag)	Replacement screws for watertight (100 per bag)
	(25 sets of 4)	(5 sets of 4)	Black	Grey		
1594A	1594AZ25	1594AD5	1599CLIP	1599CLIPGY	1594MS100	1594WMS100
1594B	1594BZ25	1594BD5	1599CLIP	1599CLIPGY	1594MS100	1594WMS100
1594C	1594CZ25	1594CD5	1599CLIP	1599CLIPGY	1594MS100	1594WMS100
1594D	1594DZ25	1594DD5	1599CLIP	1599CLIPGY	1594MS100	1594WMS100
1594E	1594EZ25	1594ED5	1599CLIP	1599CLIPGY	1594MS100	1594WMS100

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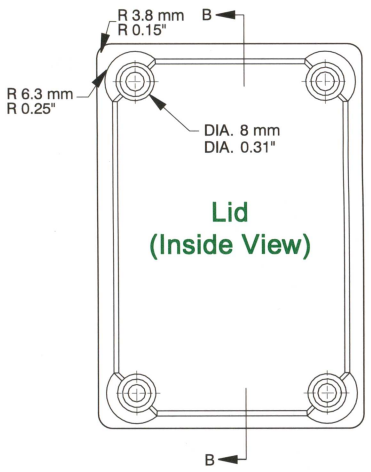
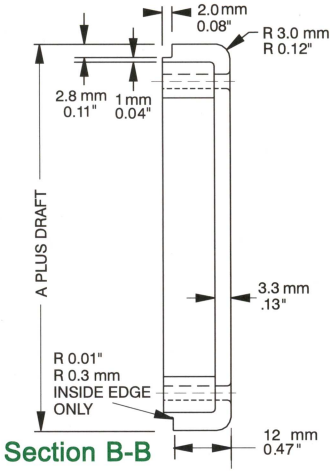
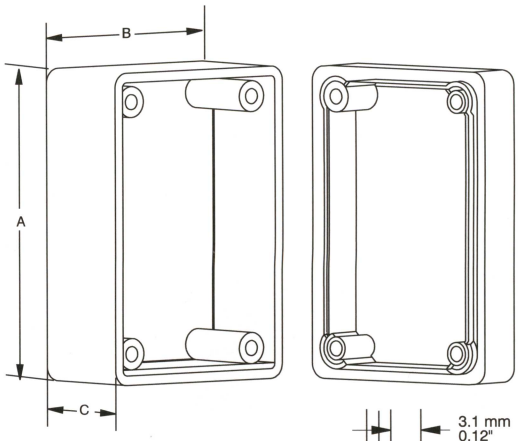
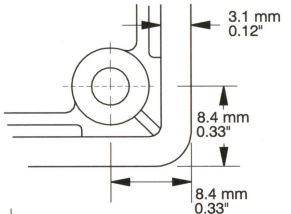
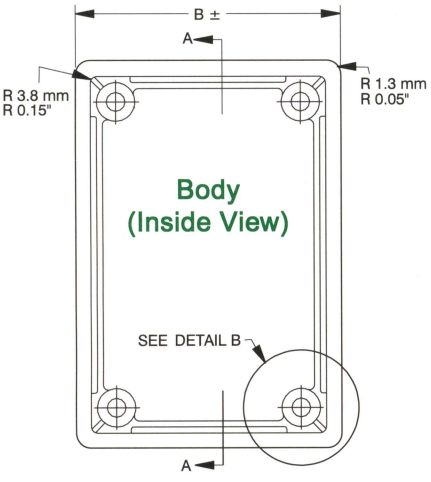
Heavy Duty - ABS (1594 Series)

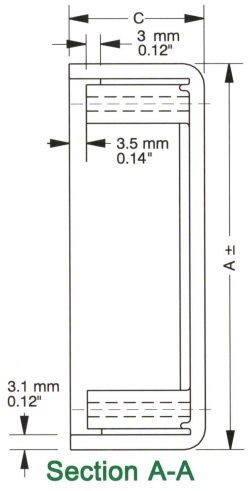


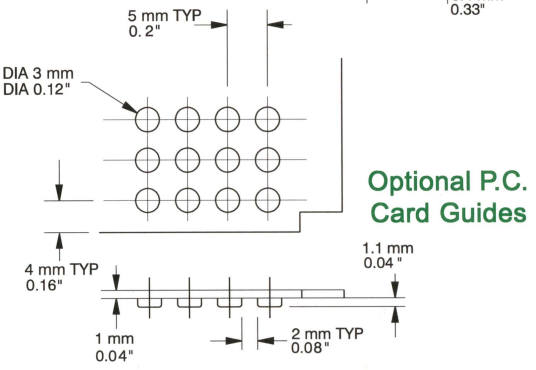








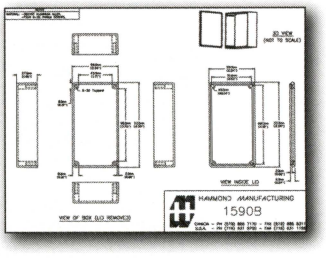




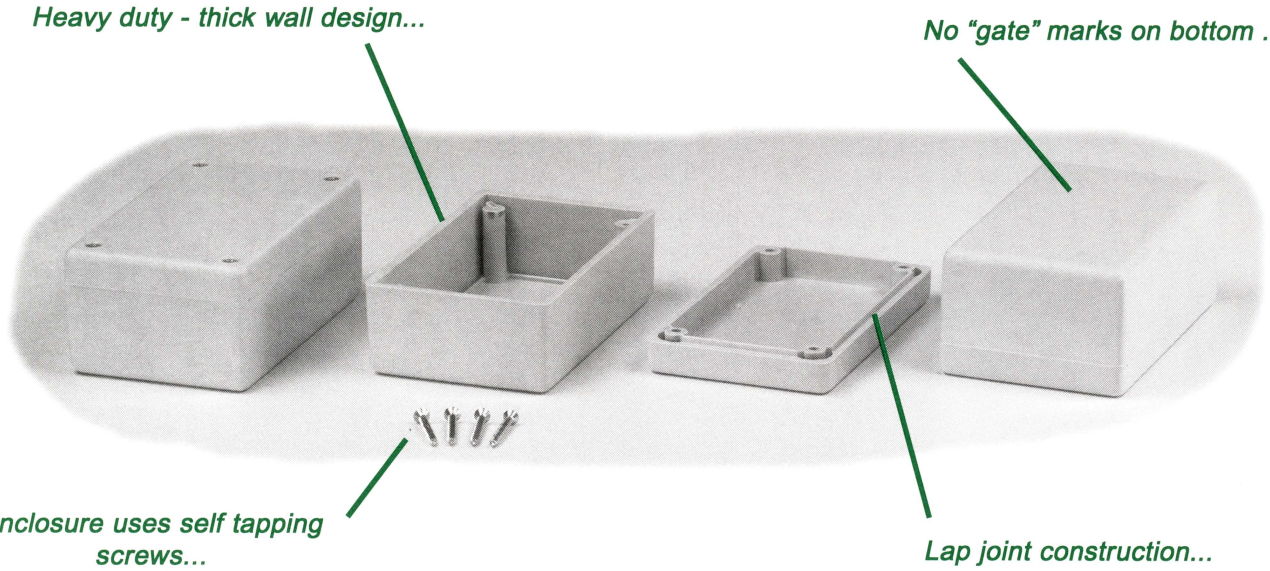
Part Number				Units	Dimensions			
Black	Grey	Black Shielded	Black Watertight		A	B	C	Assembled Height
1594ABK	1594AGY	1594RABK	1594AWBK	inch	2.2	2.2	1.1	1.6
				mm	56	56	28	40
1594BBK	1594BGY	1594RBBK	1594BWBK	inch	3.2	2.2	1.1	1.6
				mm	81	56	28	40
1594CBK	1594CGY	1594RCBK	1594CWBK	inch	4.1	2.6	1.3	1.8
				mm	105	66	33	45
1594DBK	1594DGY	1594RDBK	1594DWBK	inch	5.2	2.6	1.7	2.2
				mm	131	66	43	55
1594EBK	1594EGY	1594REBK	1594EWBK	inch	6.6	4.2	2.1	2.6
				mm	167	107	53	65

NOTES: - Assembled height = dimension "C" + 0.47" (12.0 mm)
- Average wall thickness: 0.125" (3.2 mm)

For detailed drawings, CAD files or technical bulletins visit our website at:
www.hammondmfg.com



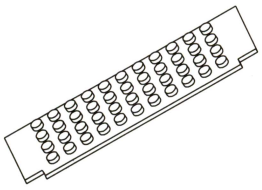
Heavy Duty - Polystyrene (1594 Series)



OTHER KEY FEATURES

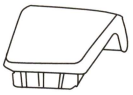
- Rugged electronic instrument enclosures, ideally suited for mounting printed circuit boards. Heavy duty with an average wall thickness of .13" (3.3 mm)
- Molded in high impact polystyrene.
- Designed to meet IP54.
- Countersunk lid is secured with four #4 x 1" (25.4 mm) self tapping screws
- Stocked in grey with matte textured finish.

ACCESSORIES



P.C. Board Card Guides

Allow for vertical or horizontal mounting of P.C. board. Each part number contains either 25 or 5 "sets". Each "set" includes four adaptors (2 - for the short side, 2 - for the long side). Molded in black ABS.



Belt or Pocket Clip

Molded from tough grey nylon, includes 2 nylon screws and mounting template.
1599CLIPGY

Replacement Screws

Self tapping type used in polystyrene type 1594 series (ie...no brass inserts). #4 x 1" (25.4 mm)
1594TS100 - Package of 100

Use with part number	Accessories			
	PC Card Guides		Belt or Pocket Clip	Replacement screws (100 per bag)
	(25 sets of 4)	(5 sets of 4)		
1594ASGY	1594AZ25	1594AD5	1599CLIPGY	1594TS100
1594BSGY	1594BZ25	1594BD5	1599CLIPGY	1594TS100
1594CSGY	1594CZ25	1594CD5	1599CLIPGY	1594TS100
1594DSGY	1594DZ25	1594DD5	1599CLIPGY	1594TS100
1594ESGY	1594EZ25	1594ED5	1599CLIPGY	1594TS100

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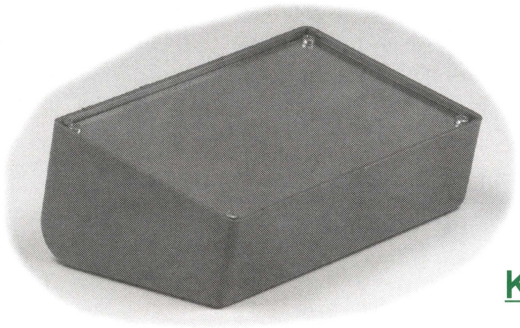
Instrument Consoles - ABS (1595 Series)



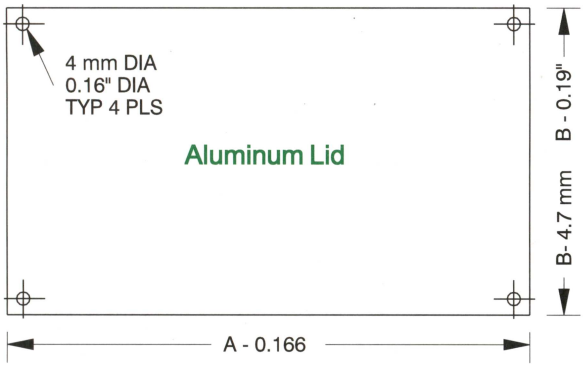
Molded in Flame Retardant ABS

KEY FEATURES

- Desk top electronic instrument enclosure, ideally suited for mounting printed circuit boards.
- Molded in flame retardant ABS plastic (carries a UL flammability rating of 94V-O at 1.47 mm (0.06") thickness)
- Two piece construction. Integral card guides accept 1.5 mm (0.062") P.C. cards. 0.20" diameter stand off bosses in the base for supporting various subassemblies.
- Tapped integral brass bushings with four M3 x 0.5" x 8 mm (0.31") Philips pan head screws hold recessed panel into sloping front of case.
- 1.01 mm (0.04") aluminum panel with paper on one side.
- Four self-adhesive feet included. Stocked in black and grey.

Part Number		Units	Dimensions					
Black	Grey		A	B	C	D	E	R
1595CBK	1595CGY	inch	6.34	3.78	2.29	2.52	4.66	0.63
		mm	161	96	58	64	118	15.9
1595EBK	1595EGY	inch	8.47	5.12	2.96	3.23	6.78	1.00
		mm	215	130	75.1	82	72	25.4

NOTES: - Average wall thickness: 0.1" (2.5 mm)



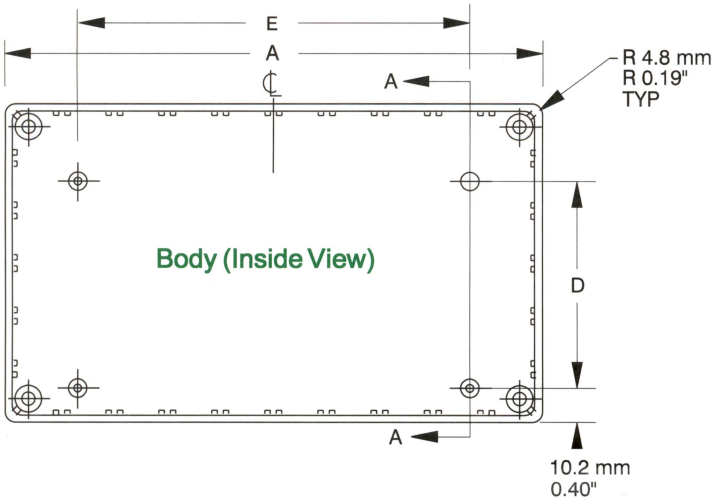
ACCESSORIES

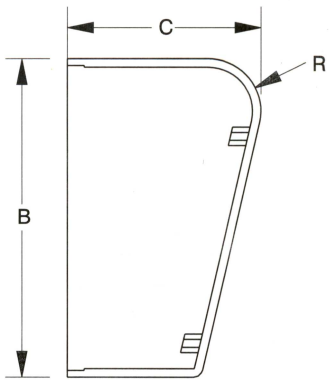
Replacement Screws

Machine type screws for aluminum lid of 1595 series
M3 - 0.5" x 8 mm
1595MS100 - Package of 100

Accessory Internal Boss Screws

Self tapping type screws for 1595 series - #6 x 0.25" (6.4 mm)
1598ATS100 - Package of 100





Section A-A

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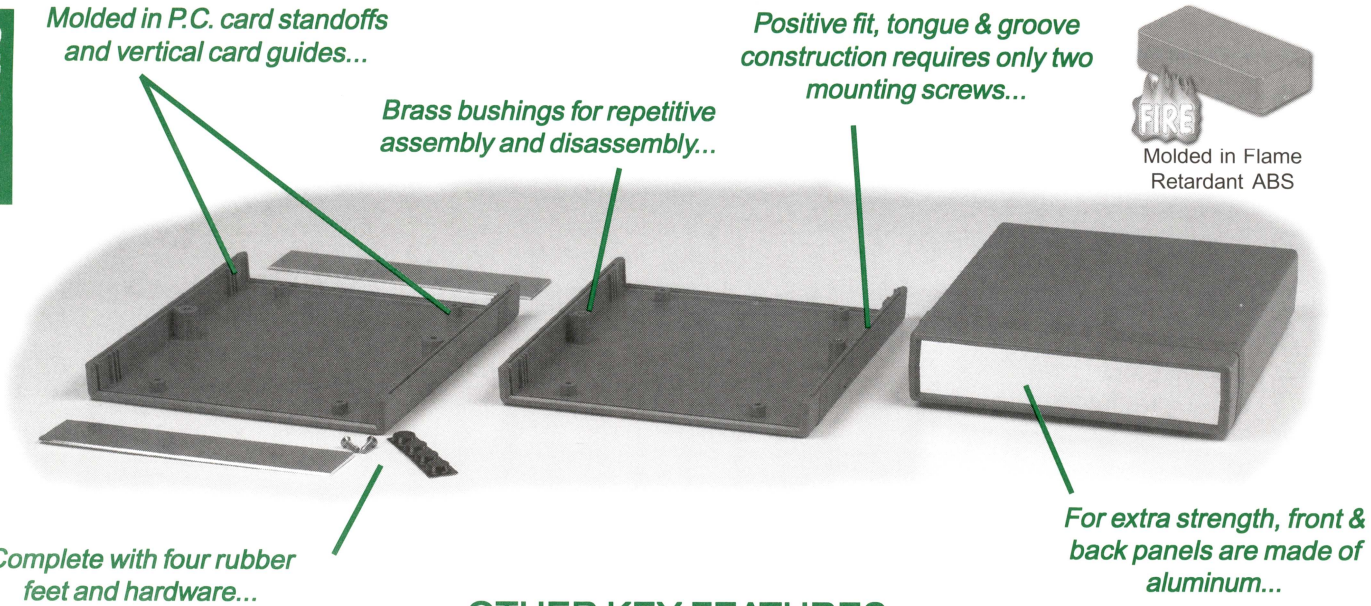
Instrument - ABS (1598 Series)

Plastic


Molded in P.C. card standoffs and vertical card guides...
Brass bushings for repetitive assembly and disassembly...
Positive fit, tongue & groove construction requires only two mounting screws...
Molded in Flame Retardant ABS
Complete with four rubber feet and hardware...
For extra strength, front & back panels are made of aluminum...

OTHER KEY FEATURES

- Desk top electronic instrument enclosure, ideally suited for mounting printed circuit boards.
- Molded in flame retardant ABS plastic (carries a UL flammability rating of 94V-O at 1.47 mm (0.06") thickness)
- Designed to meet IP54.
- Two sets of vertical 1.5 mm (0.062") P.C. board guides are molded into case halves front and rear.
- Front and rear panels are 1.6 mm (0.064") brushed aluminum with paper on one side.
- Cases halves are secured with M3 x 0.5" x 10 mm (0.39") Philips machine screws threaded into tapped integral brass bushings.
- Integral horizontal P.C. card mounts on Eurocard centers.
- Stocked in matte textured black and grey.
- EMI/RFI shielded cases are stocked in black (see table).

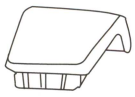
ACCESSORIES

Replacement Screws

Machine type, used in flame retardant ABS 1598 series (ie...with brass inserts). M3 - 0.5" x 10 mm
1591MS100 - Package of 100

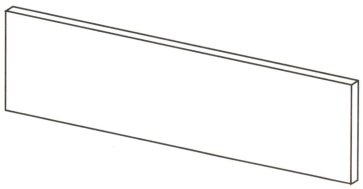
P.C. Board Screws

Self tapping type, used in bosses in the 1598 series for P.C. board installation. #6 x 1/4" (6.4 mm) **1598ATS100** - Package of 100



Belt or Pocket Clip

Molded from tough nylon, includes 2 nylon screws and mounting template. Black - **1599CLIP**
Grey - **1599CLIPGY**



Optional Plastic End Panels (Black)

Molded in black fire retardant ABS plastic. Part contains both front & back panel.
1598PLABK - Use with 1598A
1598PLBBK - Use with 1598B
1598PLBBBK - Use with 1598BB
1598PLCBK - Use with 1598C
1598PLDBK - Use with 1598D
1598PLEBK - Use with 1598E
1598PLFBK - Use with 1598F
1598PLGBK - Use with 1598G
1598PLHBK - Use with 1598H
1598PLJBK - Use with 1598J

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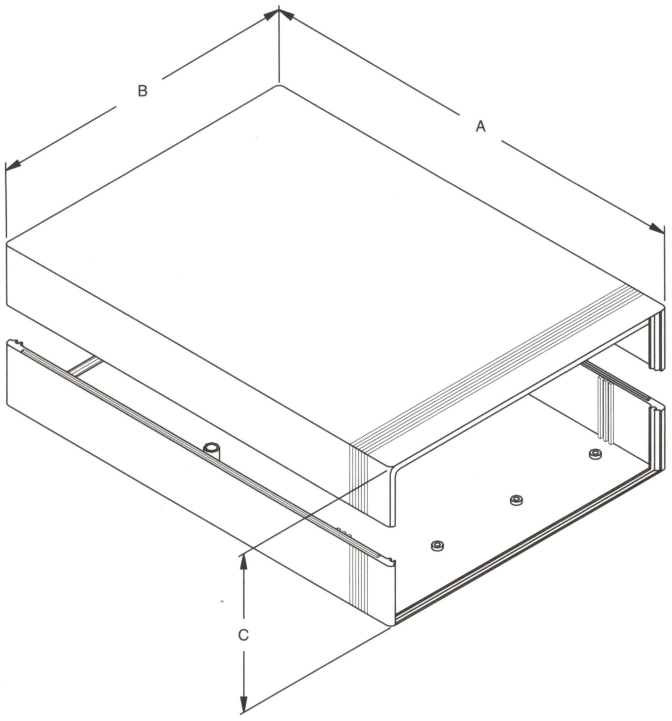
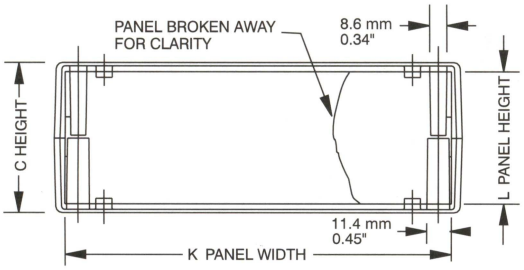
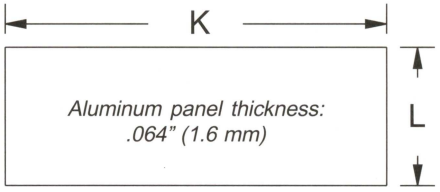
Molded in Flame Retardant ABS





End View



Front or Rear Panel

Part Number			Units	Dimensions			Panel Size	
Black	Grey	Black Shielded		A	B	C	K	L
1598ABK	1598AGY	1598RABK	inch	6.18	3.70	1.42	3.39	1.06
			mm	157	94	36	86	27
1598BBK	1598BGY	1598RBBK	inch	5.28	5.31	1.96	5.04	1.77
			mm	134	135	50	128	45
1598BBBK	1598BBGY	1598RBBBK	inch	7.05	6.06	1.42	5.75	1.14
			mm	179	154	36	146	29
1598CBK	1598CGY	1598RCBK	inch	7.09	6.10	2.04	5.71	1.81
			mm	180	155	52	145	46
1598DBK	1598DGY	1598RDBK	inch	7.09	8.11	2.52	7.80	2.28
			mm	180	206	64	198	58
1598EBK	1598EGY	1598REBK	inch	6.30	6.30	3.38	5.98	3.11
			mm	160	160	86	152	79
1598FBK	1598FGY	1598RFBK	inch	9.84	6.30	1.58	5.98	1.38
			mm	250	160	40	152	35
1598GBK	1598GGY	1598RGBK	inch	9.84	6.30	3.00	5.98	2.72
			mm	250	160	76	152	69
1598HBK	1598HGY	1598RHBK	inch	11.02	7.87	1.58	7.56	1.38
			mm	280	200	40	192	35
1598JBK	1598JGY	1598RJBK	inch	11.02	7.87	3.00	7.56	2.72
			mm	280	200	76	192	69

NOTES: - Average top & bottom wall thickness: 0.125" (3.2 mm)
- Average side wall thickness: 0.18" (4.5 mm)

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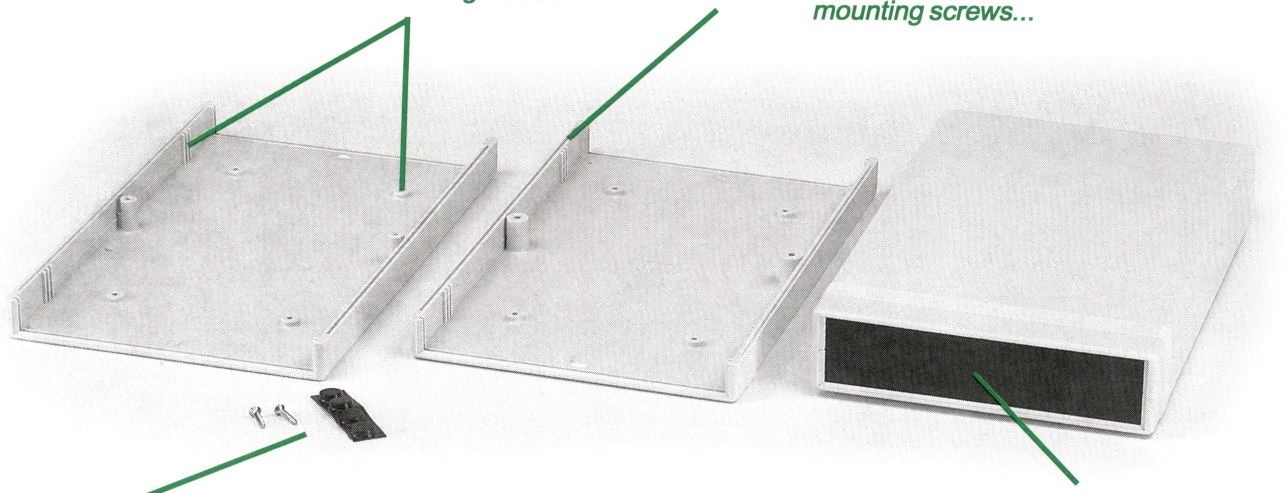
Instrument - Polystyrene (1598 Series)

Plastic


Molded in P.C. card standoffs and vertical card guides...
Positive fit, tongue & groove construction requires only two mounting screws...
Complete with four rubber feet and hardware...
Two models available, one with easy to modify ABS black plastic or the other with strong aluminum end panels...

OTHER KEY FEATURES

- Modern low profile designed instrument enclosure.
- Two sets of vertical 1.5 mm (0.062") P.C. board guides are molded into case halves, front and rear.
- Available in economical matte textured grey polystyrene plastic top & bottom halves.
- Easy access to interior via shell type construction.
- Designed to meet IP54.
- Integral horizontal P.C. card mounts on Eurocard centers.

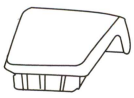
ACCESSORIES

Replacement Screws

Self tapping type, used in polystyrene 1598 series (ie...no brass inserts). # 4 x 5/8" (15.9 mm)
1598TS100 - Package of 100

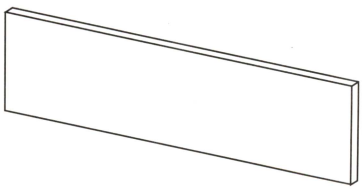
P.C. Board Screws

Self tapping type, used for bosses in the 1598 series for P.C. board installation. # 6 x 1/4" (6.4 mm)
1598ATS100 - Package of 100



Belt or Pocket Clip

Molded from tough grey nylon, includes 2 nylon screws and mounting template. 1599CLIPGY



Replacement Plastic End Panels (Black)

Molded in black fire retardant ABS plastic. Part contains both front & back panel.
1598PLABK - Use with 1598A
1598PLBBK - Use with 1598B
1598PLBBBK - Use with 1598BB
1598PLCBK - Use with 1598C
1598PLDBK - Use with 1598D
1598PLEBK - Use with 1598E
1598PLFBK - Use with 1598F
1598PLGBK - Use with 1598G
1598PLHBK - Use with 1598H
1598PLJBK - Use with 1598J

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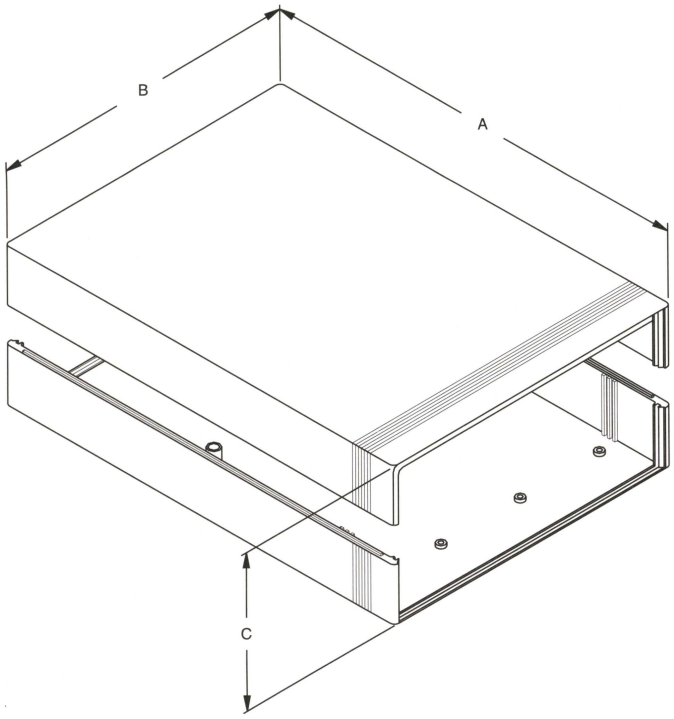
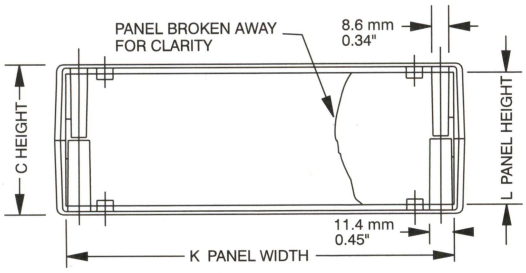
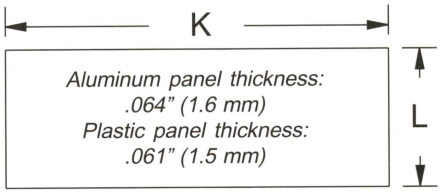




End View



Front or Rear Panel

Part Number		Units	Dimensions			Panel Size	
Grey enclosure with metal panels	Grey enclosure with black plastic panels		A	B	C	K	L
1598ASGY	1598ASGYPBK	inch	6.18	3.70	1.42	3.39	1.06
		mm	157	94	36	86	27
1598BSGY	1598BSGYPBK	inch	5.28	5.31	1.96	5.04	1.77
		mm	134	135	50	128	45
1598BBSGY	1598BBSGYPBK	inch	7.05	6.06	1.42	5.75	1.14
		mm	179	154	36	146	29
1598CSGY	1598CSGYPBK	inch	7.09	6.10	2.04	5.71	1.81
		mm	180	155	52	145	46
1598DSGY	1598DSGYPBK	inch	7.09	8.11	2.52	7.80	2.28
		mm	180	206	64	198	58
1598ESGY	1598ESGYPBK	inch	6.30	6.30	3.38	5.98	3.11
		mm	160	160	86	152	79
1598FSGY	1598FSGYPBK	inch	9.84	6.30	1.58	5.98	1.38
		mm	250	160	40	152	35
1598GSGY	1598GSGYPBK	inch	9.84	6.30	3.00	5.98	2.72
		mm	250	160	76	152	69
1598HSGY	1598HSGYPBK	inch	11.02	7.87	1.58	7.56	1.38
		mm	280	200	40	192	35
1598JSGY	1598JSGYPBK	inch	11.02	7.87	3.00	7.56	2.72
		mm	280	200	76	192	69

NOTES: - Average top & bottom wall thickness: 0.125" (3.2 mm)
- Average side wall thickness: 0.18" (4.5 mm)

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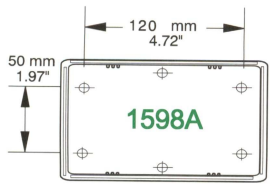
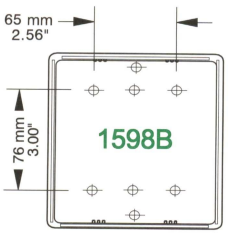
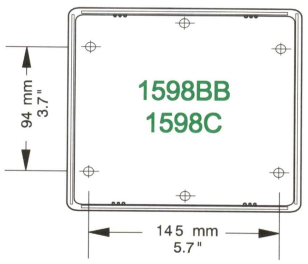
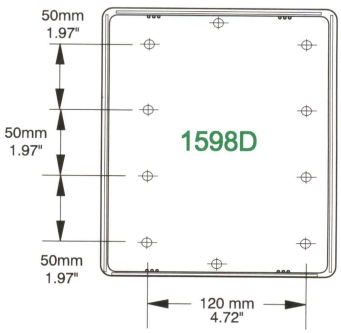
1598 Series Drawings

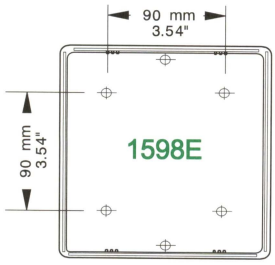
Plastic

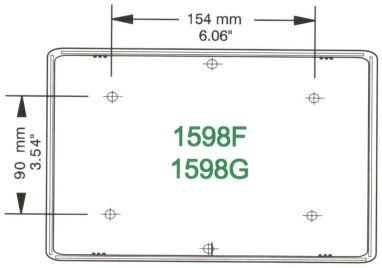


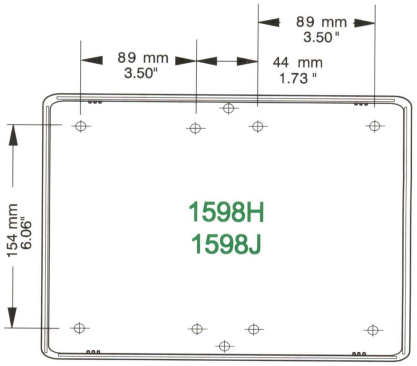


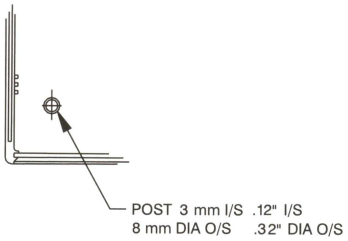












P.C. Board Standoff Detail

For detailed drawings, CAD files or technical bulletins visit our website at:
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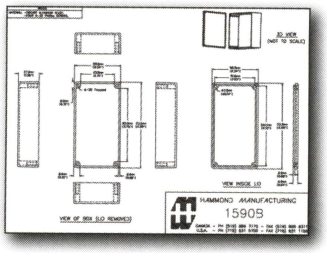

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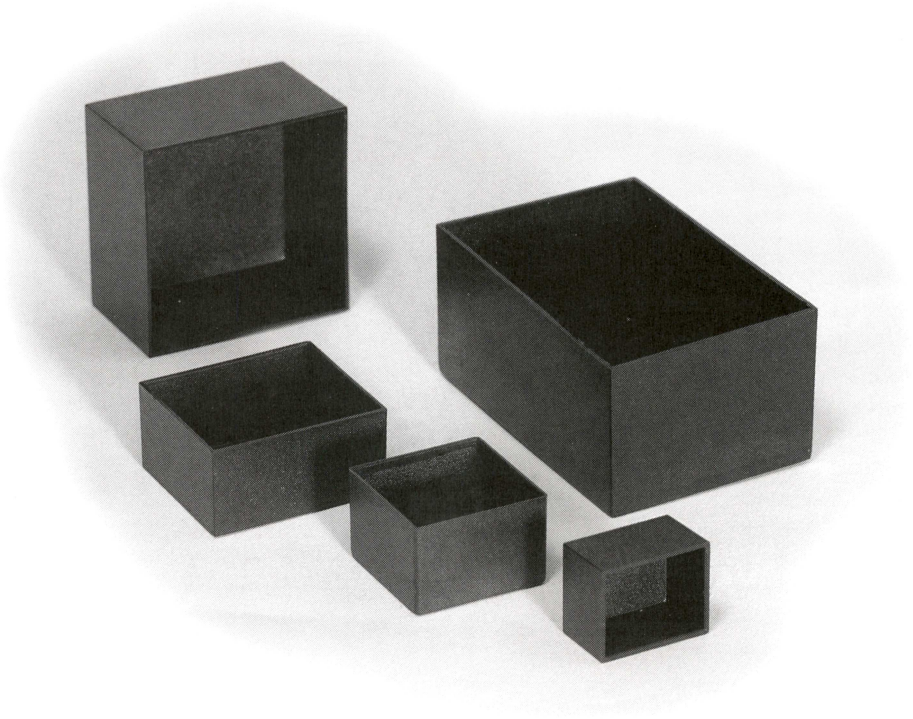
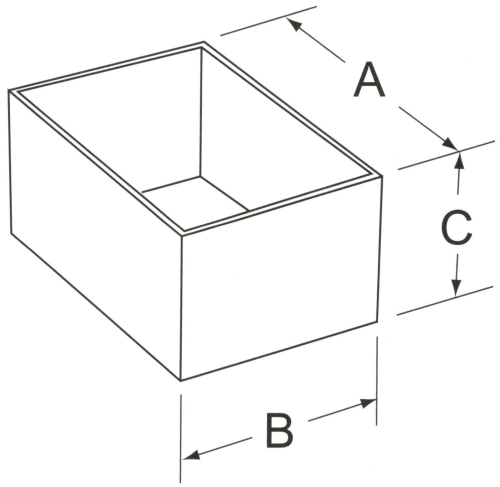


Part Number	Units	Dimensions		
		A	B	C
1596B101	inch	.98	.79	.59
	mm	25	20	15
1596B102	inch	1.18	.79	.59
	mm	30	20	15
1596B103	inch	1.57	1.37	.787
	mm	40	35	20
1596B104	inch	1.96	1.57	1.18
	mm	50	40	30
1596B105	inch	2.95	1.98	1.39
	mm	75	50	35
1596B106	inch	3.93	2.36	.99
	mm	100	60	25
1596B107	inch	1.57	1.57	.79
	mm	40	40	20
1596B108	inch	1.96	1.96	1.18
	mm	50	50	30
1596B109	inch	.46	.46	.35
	mm	12	12	9
1596B110	inch	.85	.55	.46
	mm	22	14	12
1596B111	inch	1.18	1.18	.79
	mm	30	30	20
1596B112	inch	.98	.98	.98
	mm	25	25	25
1596B113	inch	1.57	1.57	1.15
	mm	40	40	29
1596B114	inch	2.95	2.95	1.57
	mm	75	75	40
1596B115	inch	3.50	2.52	1.28
	mm	89	64	32.5

KEY FEATURES

- One piece molded construction.
- Molded from black general purpose ABS plastic.
- Temperature rated -20° to +94° C.
- 1.0 mm (0.04") wall thickness.



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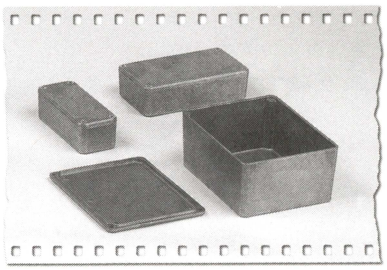
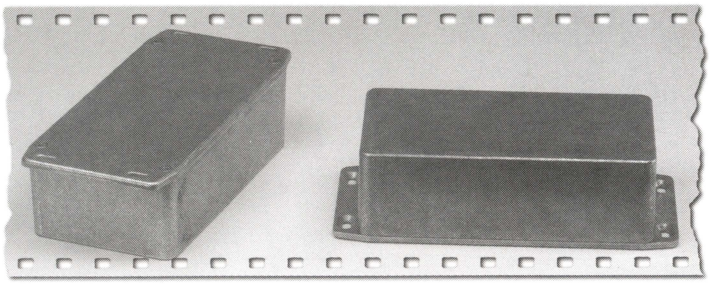
Diecast Aluminum

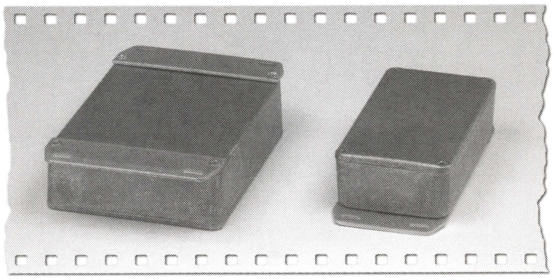
Natural Finish or Powder Painted
1590 Series
Pages 32-33



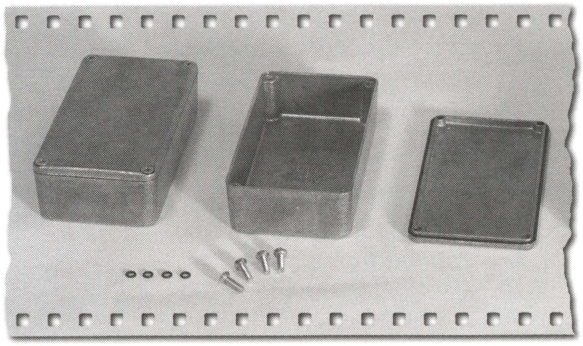


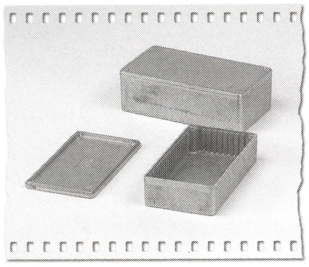
Flanged Lid
1590 Series
Pages 34-35

Bottom Flange
1590 Series
Pages 36-37



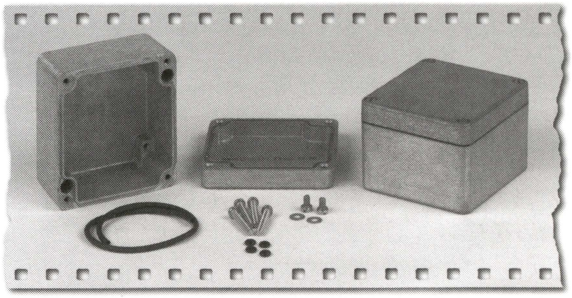
Watertight (Light Duty)
1590W Series
Pages 38-43



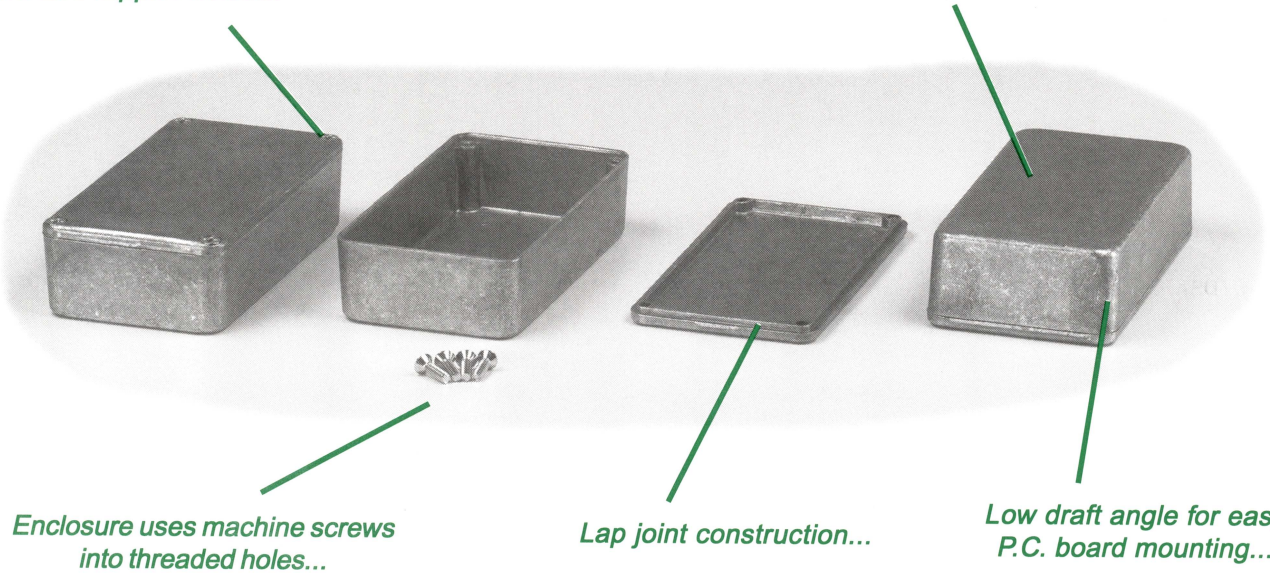


P.C. Card Guide
1590 Series
Pages 44-46

Watertight (Heavy Duty)
1590Z Series
Pages 48-51

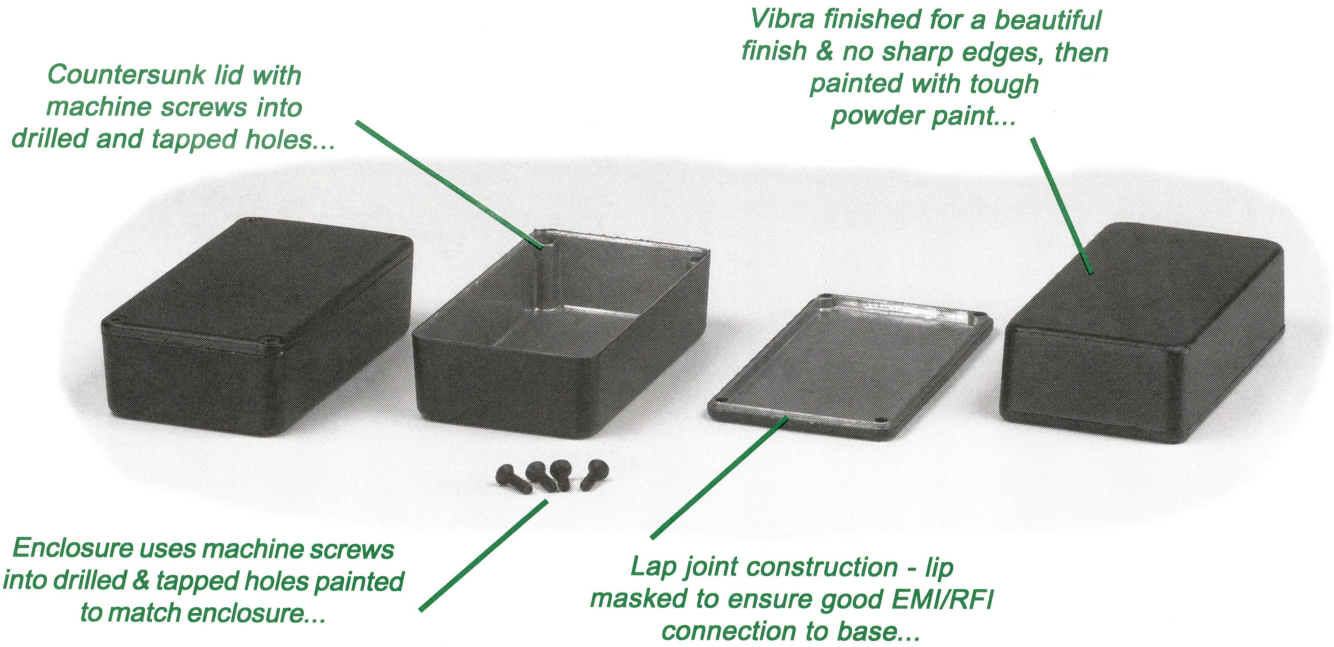


Natural & Painted (1590 Series)


Countersunk lid with machine screws into drilled and tapped holes...
Vibra finished for a beautiful finish & no sharp edges...
Enclosure uses machine screws into threaded holes...
Lap joint construction...
Low draft angle for easy P.C. board mounting...

OTHER KEY FEATURES

- Rugged, diecast aluminum alloy (tough yet easy to machine), electronic instrument enclosure.
- Two piece lap joint construction provides protection against dust accumulation and splashing water. Also provides for improved EMI/RFI shielding.
- Painted version (shown below) is painted with tough powder paint for a lasting finish, even after machining.
- Four (or 6 in 1590D, 1590DD & 1590E, 8 in 1590F) 6-32 x 1/2" machine screws secure lid - into tapped holes.
- Designed to meet IP54.
- Replacement screws for natural finish series, machine type, nickel plated, 6-32 x 1/2" - **1590MS100** - Package of 100
- Replacement screws for black painted series, 6-32 x 1/2" - **1590MS50BK** - Package of 50
- Replacement screws for grey painted series, 6-32 x 1/2" - **1590MS50GY** - Package of 50


Countersunk lid with machine screws into drilled and tapped holes...
Vibra finished for a beautiful finish & no sharp edges, then painted with tough powder paint...
Enclosure uses machine screws into drilled & tapped holes painted to match enclosure...
Lap joint construction - lip masked to ensure good EMI/RFI connection to base...

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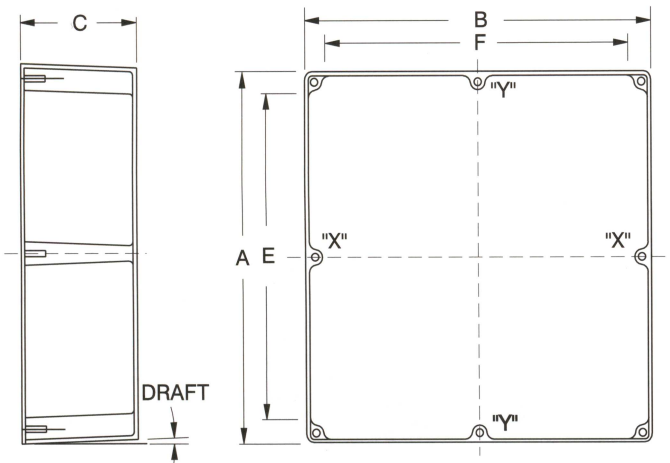
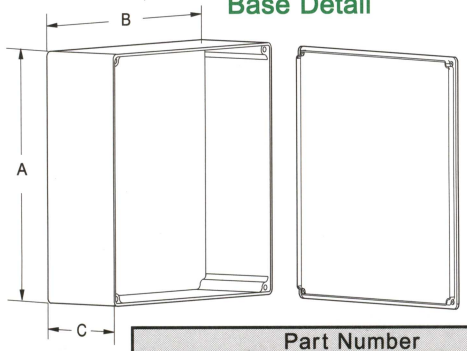
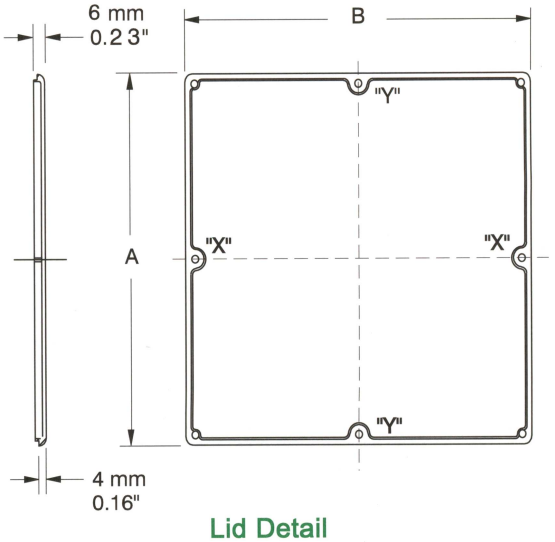


Base Detail



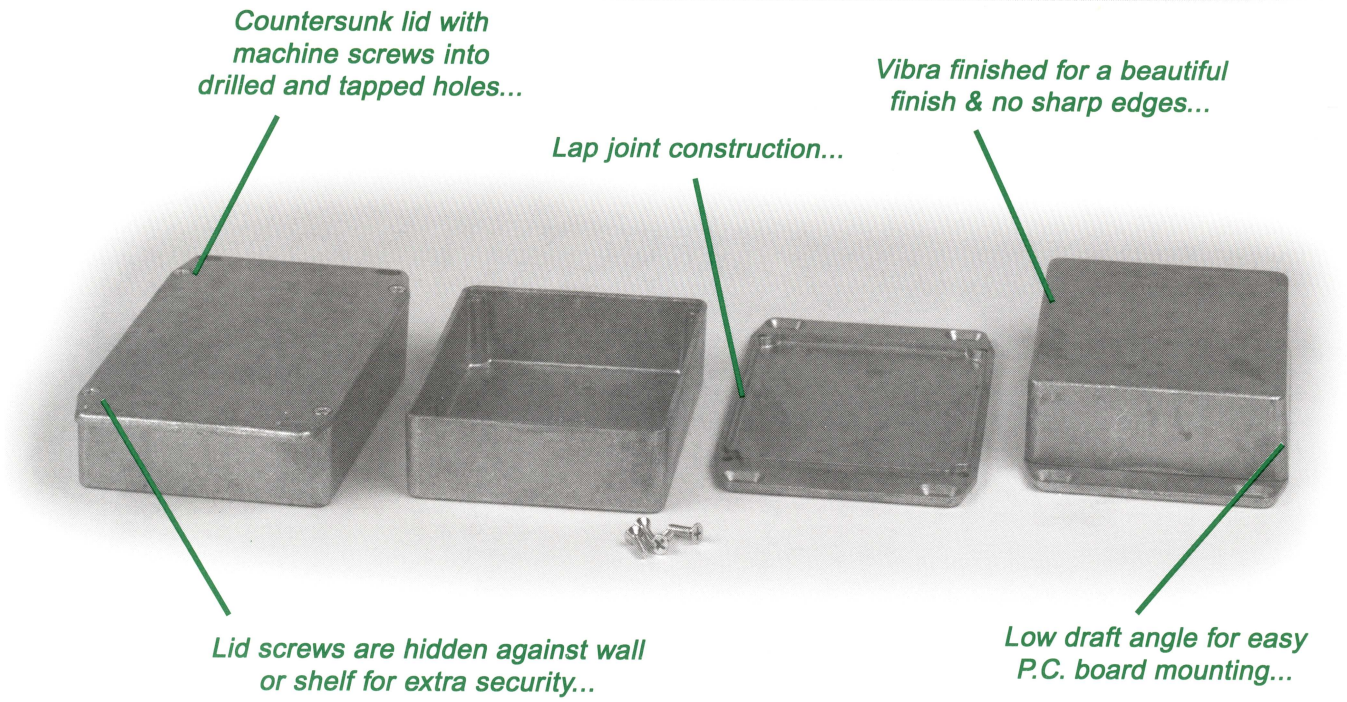


Lid Detail

Notes: - Assembled height = dimension "C" + .16" (4.0 mm)
- Wall & lid thickness is roughly .08" (2 mm) and varies with draft due to part being cast.
- Posts "X" exist on parts 1590D, 1590DD & 1590E
- Posts "X" & "Y" exist on part 1590F
- For detailed drawings, CAD files or technical bulletins visit our website at: ***www.hammondmfg.com***

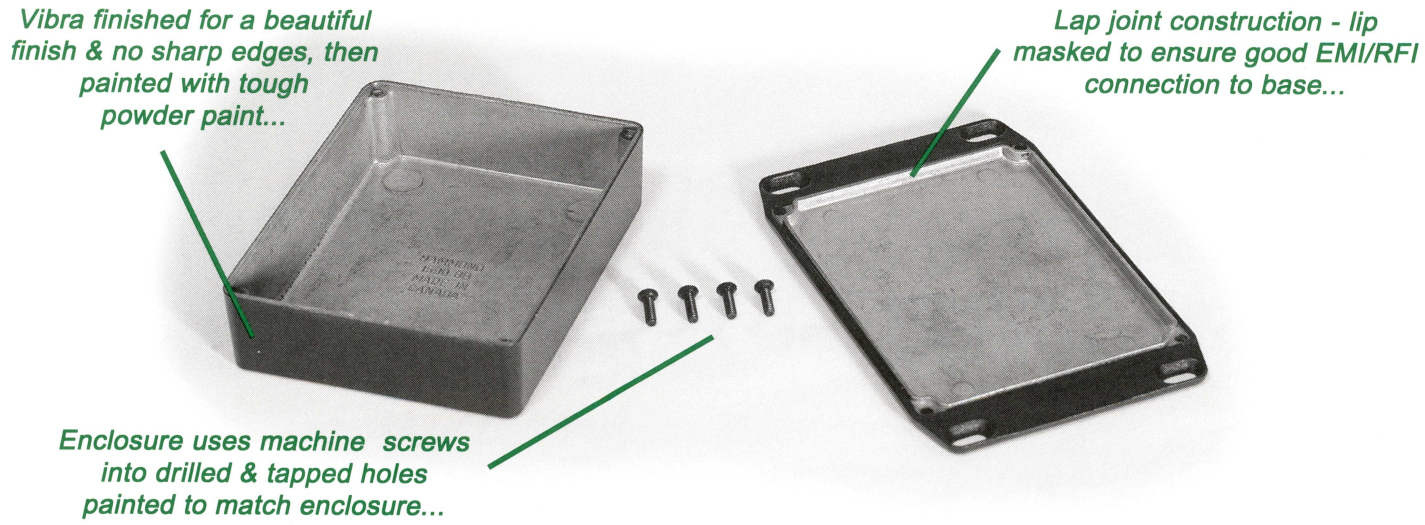
Part Number			Units	Dimensions					Apx. Draft
Unpainted	Black	Grey		A	B	C (No Lid)	E	F	
1590LB	1590LBBK	1590LBGY	inch	1.99	1.99	1.06	1.36	1.36	1°15'
			mm	50.5	50.5	27	34.5	34.5	
1590H	1590HBK	1590HGY	inch	2.07	1.50	1.06	1.41	.86	1°15'
			mm	52.5	38	27	35.9	21.8	
1590A	1590ABK	1590AGY	inch	3.64	1.52	1.06	3.01	.89	1°15'
			mm	92.5	38.5	27	76.5	22.5	
1590B	1590BBK	1590BGY	inch	4.39	2.34	1.06	3.76	1.71	1°15'
			mm	111.5	59.5	27	95.5	43.5	
1590BB	1590BBBK	1590BBGY	inch	4.67	3.68	1.18	4.04	3.05	1°15'
			mm	118.5	93.5	30	102.5	77.5	
1590DD	1590DDBK	1590DDGY	inch	7.40	4.70	1.30	6.77	4.07	1°15'
			mm	188	119.5	33	172	103.5	
1590N1	1590N1BK	1590N1GY	inch	4.77	2.60	1.39	4.09	1.92	1°15'
			mm	121.1	66	35.3	103.8	48.7	
1590S	1590SBK	1590SGY	inch	4.35	3.21	1.57	3.72	2.58	1°15'
			mm	110.5	81.5	40	94.5	65.5	
1590J	1590JBK	1590JGY	inch	5.71	3.74	1.77	5.06	3.09	2°
			mm	145	95	45	128.5	78.5	
1590P1	1590P1BK	1590P1GY	inch	6.01	3.24	1.81	5.38	2.87	2°
			mm	153	82	46	137	73	
1590D	1590DBK	1590DGY	inch	7.38	4.70	2.05	6.75	4.07	2°
			mm	187.5	119.5	52	171.5	103.5	
1590C	1590CBK	1590CGY	inch	4.72	3.70	2.07	4.09	3.07	2°
			mm	120	94	52.5	104	78	
1590T	1590TBK	1590TGY	inch	4.74	3.13	2.17	4.11	2.50	1°15'
			mm	120.5	79.5	55	104.5	63.5	
1590U	1590UBK	1590UGY	inch	4.70	4.70	2.17	4.07	4.07	1°15'
			mm	119.5	119.5	55	103.5	103.5	
1590F	1590FBK	1590FGY	inch	7.38	7.38	2.48	6.75	6.75	2°
			mm	187.5	187.5	63	171.5	171.5	
1590K	1590KBK	1590KGY	inch	4.92	4.92	2.95	4.27	4.27	1°15'
			mm	125	125	75	108.5	108.5	
1590E	1590EBK	1590EGY	inch	7.38	4.70	3.07	6.75	4.07	2°
			mm	187.5	119.5	78	171.5	103.5	
1590V	1590VBK	1590VGY	inch	4.70	4.70	3.54	4.07	4.07	1°15'
			mm	119.5	119.5	90	103.5	103.5	

Natural & Painted Flanged Lid (1590 Series)


Countersunk lid with machine screws into drilled and tapped holes...
Lap joint construction...
Vibra finished for a beautiful finish & no sharp edges...
Lid screws are hidden against wall or shelf for extra security...
Low draft angle for easy P.C. board mounting...

KEY FEATURES

- Rugged, diecast aluminum alloy (tough yet easy to machine), electronic instrument enclosure.
- Two piece lap joint construction provides protection against dust accumulation and splashing water. Also provides for improved EMI/RFI shielding.
- Flanged lid allows for easy mounting to walls or shelves.
- These enclosures share the same body and features as our regular type 1590 enclosure except the lid is extended and four countersunk holes are cast into the flanges.
- The flanged lid allows for added security as the lid screws are hidden against the wall or shelf.
- Painted version is painted with tough powder paint for a lasting finish, even after machining.
- Four (or 6 in 1590D, 1590DD & 1590E, 8 in 1590F) 6-32 x 1/2" machine screws secure lid - into tapped holes.
- Designed to meet IP5
- Replacement screws for natural finish series, machine type, nickel plated, 6-32 x 1/2" - **1590MS100** - Package of 100
- Replacement screws for black painted series, 6-32 x 1/2" - **1590MS50BK** - Package of 50


Vibra finished for a beautiful finish & no sharp edges, then painted with tough powder paint...
Lap joint construction - lip masked to ensure good EMI/RFI connection to base...
Enclosure uses machine screws into drilled & tapped holes painted to match enclosure...

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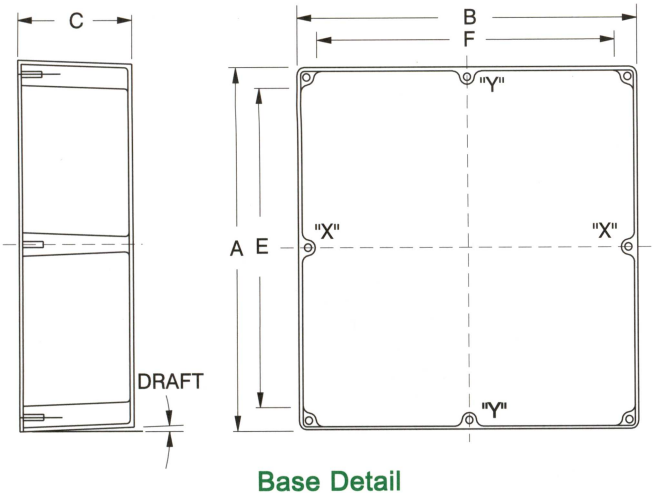
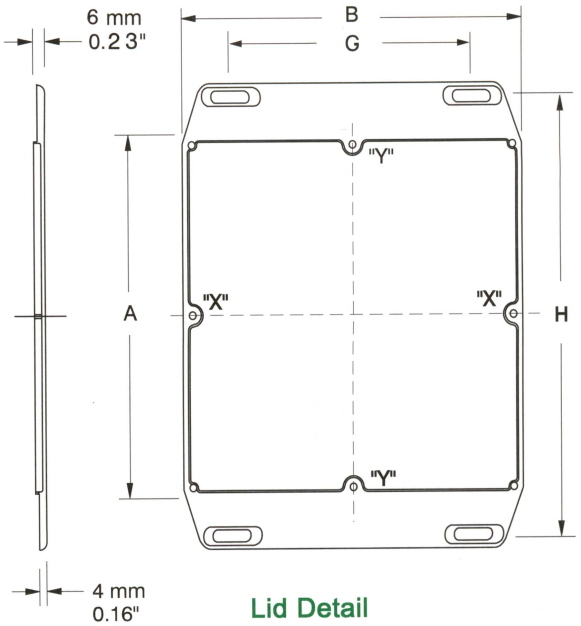
Natural & Painted Flanged Lid (1590 Series)



Base Detail



Lid Detail

Notes: - Assembled height = dimension "C" + .16" (4.0 mm)
- Wall & lid thickness is roughly .08" (2 mm) and varies with draft due to part being cast.
- Posts "X" exist on parts 1590D, 1590DD & 1590E
- Posts "X" & "Y" exist on part 1590F
- For detailed drawings, CAD files or technical bulletins visit our website at: ***www.hammondmfg.com***

Part Number		Units	Dimensions							Apx. Draft
Unpainted	Black		A	B	C (No Lid)	E	F	G	H	
1590LBFL	1590LBFLBK	inch	1.99	1.99	1.06	1.36	1.36	1.04	2.57	1°15'
		mm	50.5	50.5	27	34.5	34.5	26	65	
1590AFL	1590AFLBK	inch	3.64	1.52	1.06	3.01	.89	.54	4.32	1°15'
		mm	92.5	38.5	27	76.5	22.5	14	110	
1590BFL	1590BFLBK	inch	4.39	2.34	1.06	3.76	1.71	1.40	4.99	1°15'
		mm	111.5	59.5	27	95.5	43.5	35.6	127	
1590BBFL	1590BBFLBK	inch	4.67	3.68	1.18	4.04	3.05	2.73	5.38	1°15'
		mm	118.5	93.5	30	102.5	77.5	69	137	
1590DDFL	1590DDFLBK	inch	7.40	4.70	1.30	6.77	4.07	3.73	8.08	1°15'
		mm	188	119.5	33	172	103.5	95	205	
1590N1FL	1590N1FLBK	inch	4.77	2.60	1.39	4.09	1.92	1.52	5.35	1°15'
		mm	121.1	66	35.3	103.8	48.7	38.5	135.8	
1590SFL	1590SFLBK	inch	4.35	3.21	1.57	3.72	2.58	2.26	5.03	1°15'
		mm	110.5	81.5	40	94.5	65.5	57	128	
1590P1FL	1590P1FLBK	inch	6.01	3.24	1.81	5.38	2.87	2.20	6.62	2°
		mm	153	82	46	137	73	56	168	
1590DFL	1590DFLBK	inch	7.38	4.70	2.05	6.75	4.07	3.73	8.08	2°
		mm	187.5	119.5	52	171.5	103.5	96	205	
1590CFL	1590CFLBK	inch	4.72	3.70	2.07	4.09	3.07	2.73	5.38	2°
		mm	120	94	52.5	104	78	69	137	
1590TFL	1590TFLBK	inch	4.74	3.13	2.17	4.11	2.50	2.19	5.42	1°15'
		mm	120.5	79.5	55	104.5	63.5	56	138	
1590UFL	1590UFLBK	inch	4.70	4.70	2.17	4.07	4.07	3.77	5.42	1°15'
		mm	119.5	119.5	55	103.5	103.5	96	138	
1590FFL	1590FFLBK	inch	7.38	7.38	2.48	6.75	6.75	6.43	8.08	2°
		mm	187.5	187.5	63	171.5	171.5	163	205	
1590EFL	1590EFLBK	inch	7.38	4.70	3.07	6.75	4.07	3.73	8.08	2°
		mm	187.5	119.5	78	171.5	103.5	96	205	
1590VFL	1590VFLBK	inch	4.70	4.70	3.54	4.07	4.07	3.73	5.42	1°15'
		mm	119.5	119.5	90	103.5	103.5	96	138	

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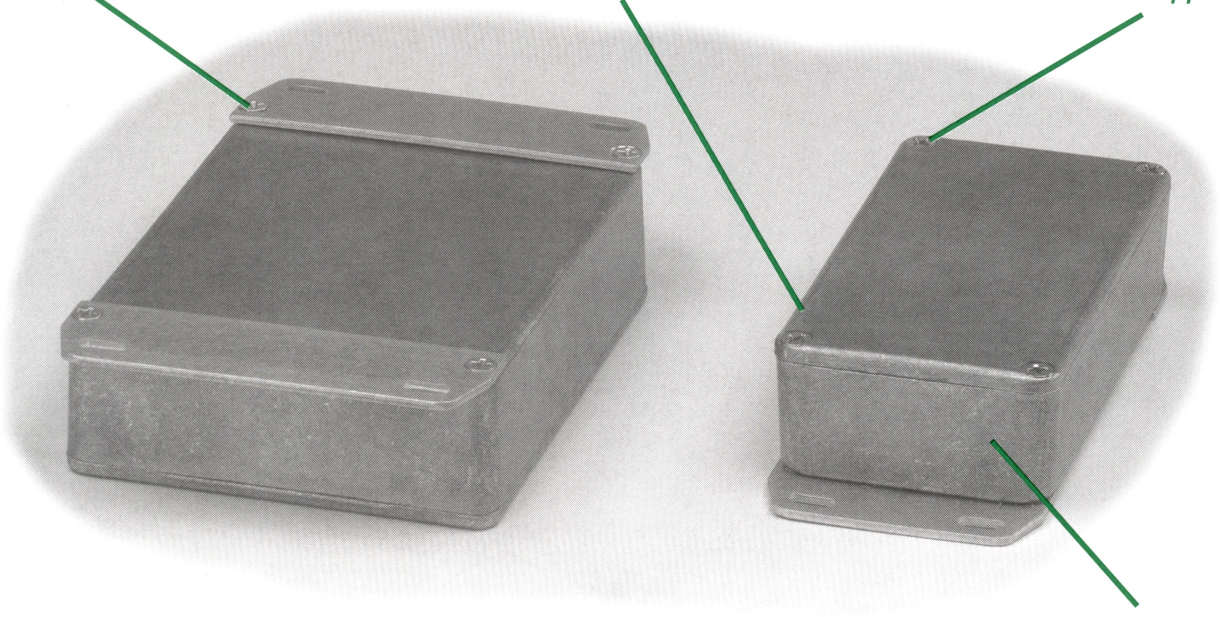
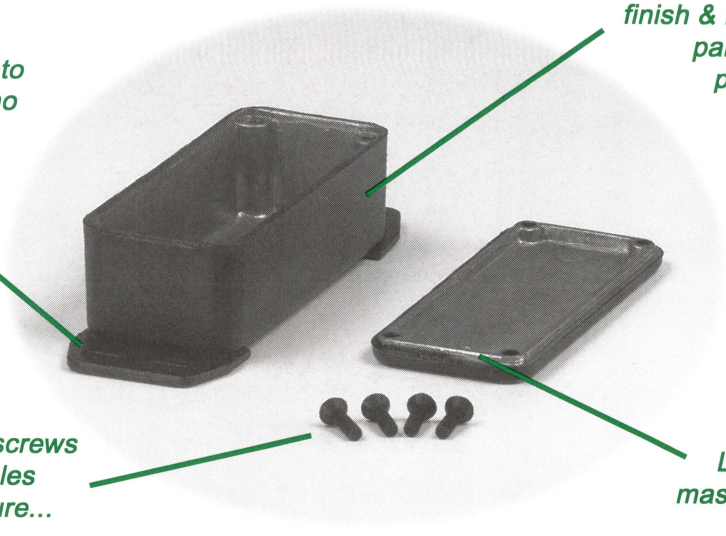
Natural & Painted w/ Flange (1590 Series)


Factory installed flanges into reverse side of lid holes (no internal interference)...
Lid screws are exposed for easy enclosure access...
Countersunk lid with machine screws into drilled and tapped holes...
Vibra finished for a beautiful finish & no sharp edges...

OTHER KEY FEATURES

- Rugged, diecast aluminum alloy (tough yet easy to machine), electronic instrument enclosure.
- Two piece lap joint construction provides protection against dust accumulation and splashing water. Also provides for improved EMI/RFI shielding.
- Painted version (shown below) is painted with tough powder paint for a lasting finish, even after machining.
- Four (or 6 in 1590D, 1590DD & 1590E, 8 in 1590F) 6-32 x 1/2" machine screws secure lid - into tapped holes.
- Designed to meet IP54
- Replacement screws for natural finish series, machine type, nickel plated, 6-32 x 1/2" - **1590MS100** - Package of 100
- Replacement screws for black painted series, 6-32 x 1/2" - **1590MS50BK** - Package of 50


Vibra finished for a beautiful finish & no sharp edges, then painted with tough powder paint...
Factory installed flanges into reverse side of lid holes (no internal interference)...
Enclosure uses machine screws into drilled & tapped holes painted to match enclosure...
Lap joint construction - lip masked to ensure good EMI/RFI connection to base...

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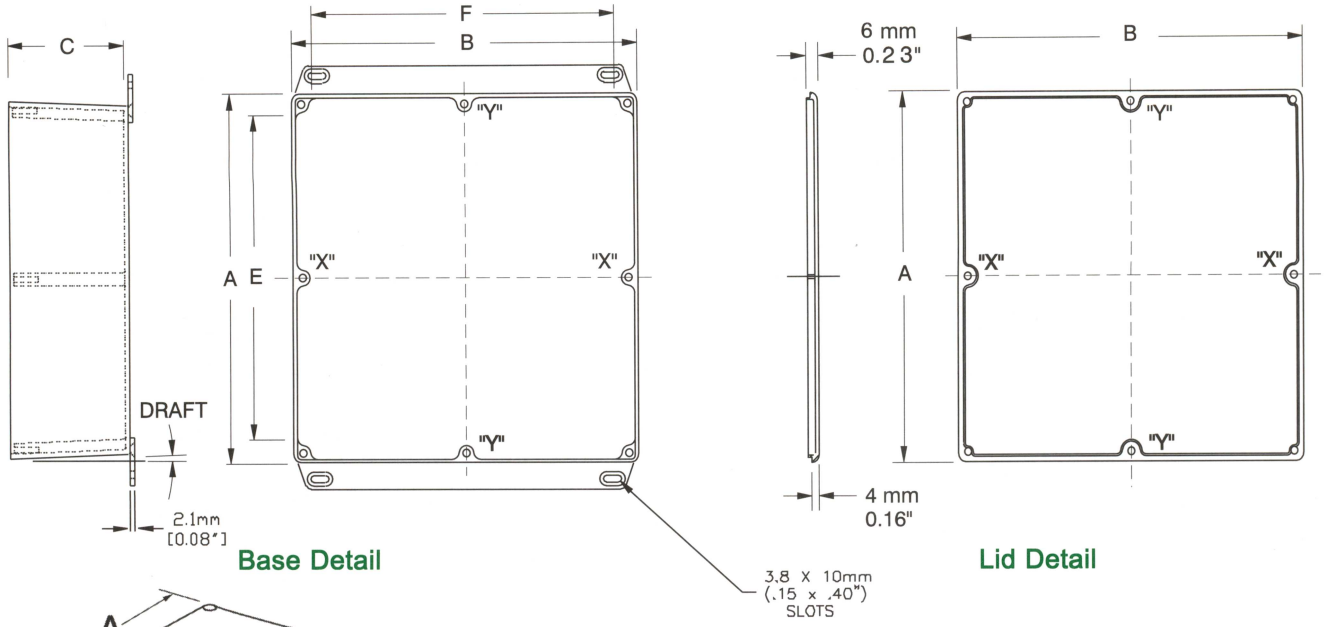
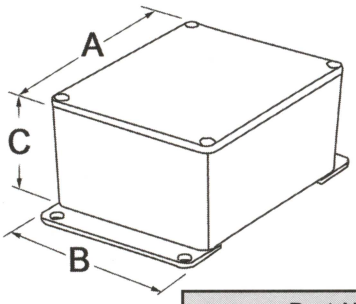


Base Detail

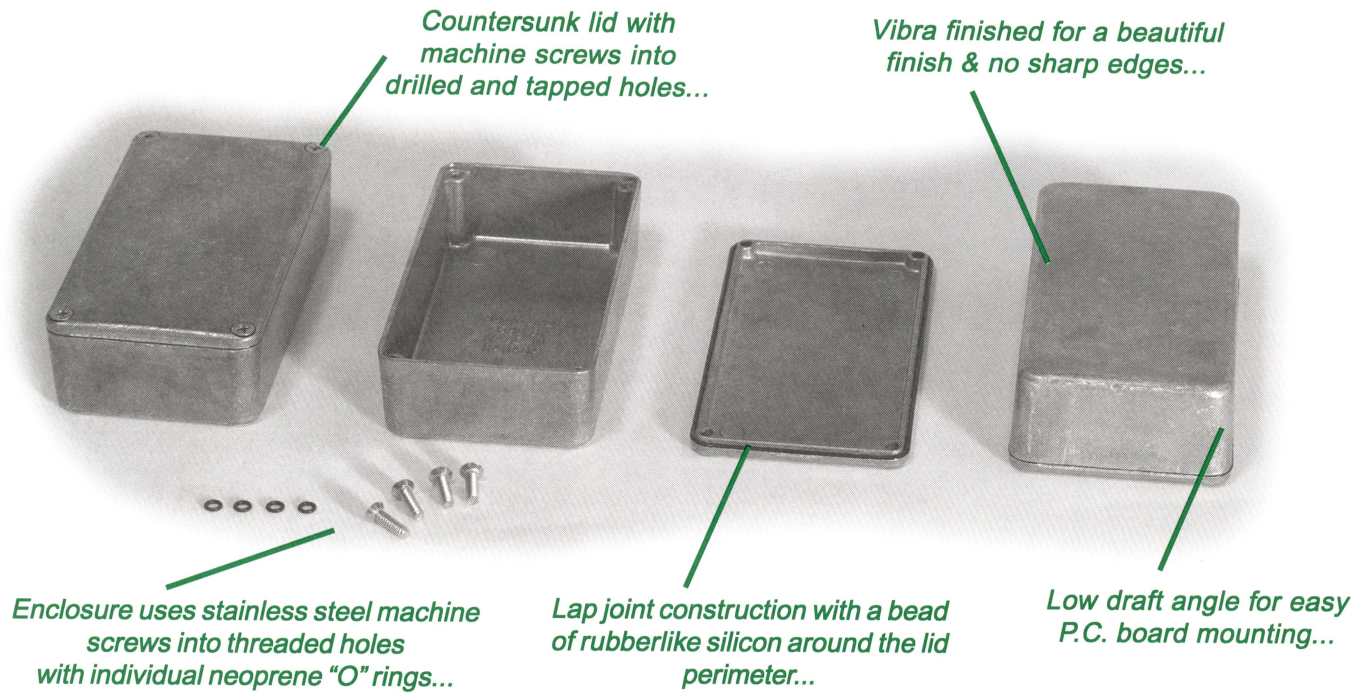
Lid Detail



Notes:
- Assembled height = dimension "C" + .16" (4.0 mm)
- Wall & lid thickness is roughly .08" (2 mm) and varies with draft due to part being cast.
- Posts "X" exist on parts 1590D, 1590DD & 1590E
- Posts "X" & "Y" exist on part 1590F
- For detailed drawings, CAD files or technical bulletins visit our website at: ***www.hammondmfg.com***

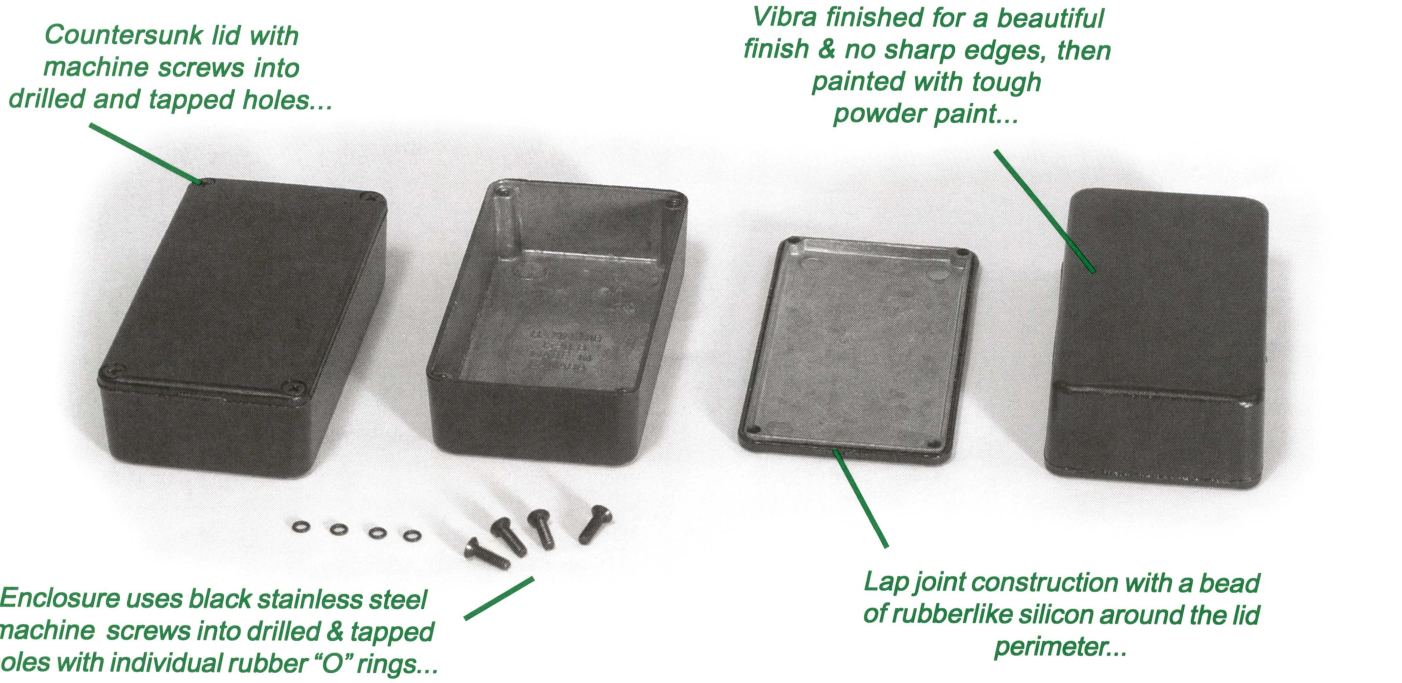
Part Number		Units	Dimensions					Apx. Draft
Unpainted	Black		A	B	C (No Lid)	E	F	
1590LBF	1590LBFBK	inch	1.99	1.99	1.06	1.36	1.36	1°15'
		mm	50.5	50.5	27	34.5	34.5	
1590AF	1590AFBK	inch	3.64	1.52	1.06	3.01	.89	1°15'
		mm	92.5	38.5	27	76.5	22.5	
1590BF	1590BFBK	inch	4.39	2.34	1.06	3.76	1.71	1°15'
		mm	111.5	59.5	27	95.5	43.5	
1590BBF	1590BBFBK	inch	4.67	3.68	1.18	4.04	3.05	1°15'
		mm	118.5	93.5	30	102.5	77.5	
1590DDF	1590DDFBK	inch	7.40	4.70	1.30	6.77	4.07	1°15'
		mm	188	119.5	33	172	103.5	
1590N1F	1590N1FBK	inch	4.77	2.60	1.39	4.09	1.92	1°15'
		mm	121.1	66	35.3	103.8	48.7	
1590SF	1590SFBK	inch	4.35	3.21	1.57	3.72	2.58	1°15'
		mm	110.5	81.5	40	94.5	65.5	
1590P1F	1590P1FBK	inch	6.01	3.24	1.81	5.38	2.87	2°
		mm	153	82	46	137	73	
1590DF	1590DFBK	inch	7.38	4.70	2.05	6.75	4.07	2°
		mm	187.5	119.5	52	171.5	103.5	
1590CF	1590CFBK	inch	4.72	3.70	2.07	4.09	3.07	2°
		mm	120	94	52.5	104	78	
1590TF	1590TFBK	inch	4.74	3.13	2.17	4.11	2.50	1°15'
		mm	120.5	79.5	55	104.5	63.5	
1590UF	1590UFBK	inch	4.70	4.70	2.17	4.07	4.07	1°15'
		mm	119.5	119.5	55	103.5	103.5	
1590FF	1590FFBK	inch	7.38	7.38	2.48	6.75	6.75	2°
		mm	187.5	187.5	63	171.5	171.5	
1590EF	1590EFBK	inch	7.38	4.70	3.07	6.75	4.07	2°
		mm	187.5	119.5	78	171.5	103.5	
1590VF	1590VFBK	inch	4.70	4.70	3.54	4.07	4.07	1°15'
		mm	119.5	119.5	90	103.5	103.5	

Natural & Painted Watertight (1590W Series)


Countersunk lid with machine screws into drilled and tapped holes...
Vibra finished for a beautiful finish & no sharp edges...
Enclosure uses stainless steel machine screws into threaded holes with individual neoprene "O" rings...
Lap joint construction with a bead of rubberlike silicon around the lid perimeter...
Low draft angle for easy P.C. board mounting...

OTHER KEY FEATURES

- Rugged, diecast aluminum alloy (tough yet easy to machine), electronic instrument enclosure.
- Two piece lap joint construction with a bead of rubberlike silicon around the perimeter provides protection against dust accumulation and water.
- Poured silicon remains flexible from -62 to +232ºC (-80 to +450 ºF)
- Painted version (shown below) is painted with tough powder paint for a lasting finish, even after machining.
- Four (or 6 in 1590D, 1590DD & 1590E, 8 in 1590F) 6-32 x 1/2" stainless steel machine screws secure lid - into tapped holes.
- Designed to meet IP65.


Countersunk lid with machine screws into drilled and tapped holes...
Vibra finished for a beautiful finish & no sharp edges, then painted with tough powder paint...
Enclosure uses black stainless steel machine screws into drilled & tapped holes with individual rubber "O" rings...
Lap joint construction with a bead of rubberlike silicon around the lid perimeter...

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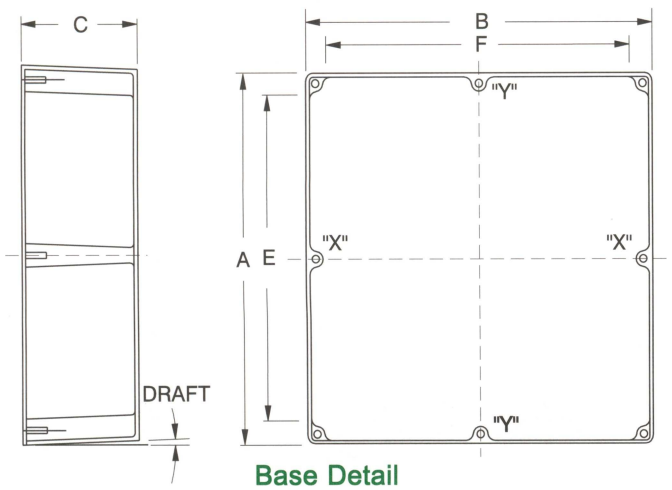
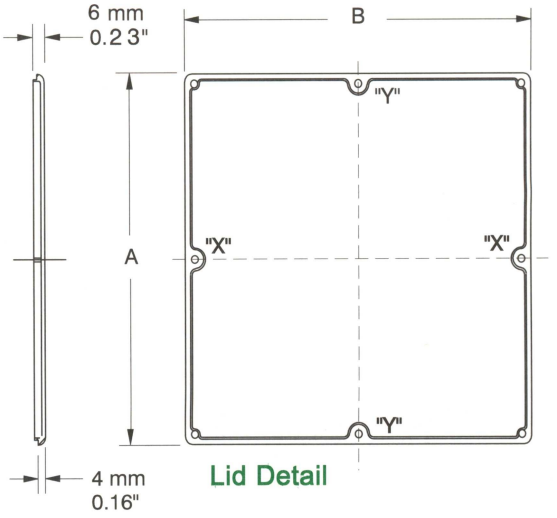
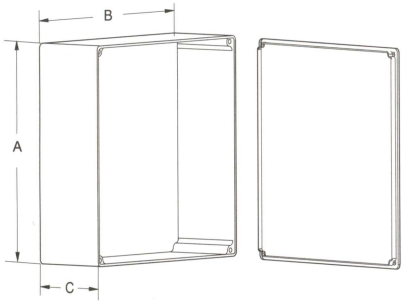
Natural & Painted Watertight (1590W Series)



Base Detail



Lid Detail



Notes:
- Assembled height = dimension "C" + .16" (4.0 mm)
- Wall & lid thickness is roughly .08" (2 mm) and varies with draft due to part being cast.
- Posts "X" exist on parts 1590D, 1590DD & 1590E
- Posts "X" & "Y" exist on part 1590F
- For detailed drawings, CAD files or technical bulletins visit our website at: ***www.hammondmfg.com***

Part Number		Units	Dimensions					Apx. Draft
Unpainted	Black		A	B	C (No Lid)	E	F	
1590WLB	1590WLBBK	inch	1.99	1.99	1.06	1.36	1.36	1°15'
		mm	50.5	50.5	27	34.5	34.5	
1590WH	1590WHBK	inch	2.07	1.50	1.06	1.41	.86	1°15'
		mm	52.5	38	27	35.9	21.8	
1590WA	1590WABK	inch	3.64	1.52	1.06	3.01	.89	1°15'
		mm	92.5	38.5	27	76.5	22.5	
1590WB	1590WBBK	inch	4.39	2.34	1.06	3.76	1.71	1°15'
		mm	111.5	59.5	27	95.5	43.5	
1590WBB	1590WBBBK	inch	4.67	3.68	1.18	4.04	3.05	1°15'
		mm	118.5	93.5	30	102.5	77.5	
1590WDD	1590WDDBK	inch	7.40	4.70	1.30	6.77	4.07	1°15'
		mm	188	119.5	33	172	103.5	
1590WN1	1590WN1BK	inch	4.77	2.60	1.39	4.09	1.92	1°15'
		mm	121.1	66	35.3	103.8	48.7	
1590WS	1590WSBK	inch	4.35	3.21	1.57	3.72	2.58	1°15'
		mm	110.5	81.5	40	94.5	65.5	
1590WJ	1590WJBK	inch	5.71	3.74	1.77	5.06	3.09	2°
		mm	145	95	45	128.5	78.5	
1590WP1	1590WP1BK	inch	6.01	3.24	1.81	5.38	2.87	2°
		mm	153	82	46	137	73	
1590WD	1590WDBK	inch	7.38	4.70	2.05	6.75	4.07	2°
		mm	187.5	119.5	52	171.5	103.5	
1590WC	1590WCBK	inch	4.72	3.70	2.07	4.09	3.07	2°
		mm	120	94	52.5	104	78	
1590WT	1590WTBK	inch	4.74	3.13	2.17	4.11	2.50	1°15'
		mm	120.5	79.5	55	104.5	63.5	
1590WU	1590WUBK	inch	4.70	4.70	2.17	4.07	4.07	1°15'
		mm	119.5	119.5	55	103.5	103.5	
1590WF	1590WFBK	inch	7.38	7.38	2.48	6.75	6.75	2°
		mm	187.5	187.5	63	171.5	171.5	
1590WK	1590WKBK	inch	4.92	4.92	2.95	4.27	4.27	1°15'
		mm	125	125	75	108.5	108.5	
1590WE	1590WEBK	inch	7.38	4.70	3.07	6.75	4.07	2°
		mm	187.5	119.5	78	171.5	103.5	
1590WV	1590WVBK	inch	4.70	4.70	3.54	4.07	4.07	1°15'
		mm	119.5	119.5	90	103.5	103.5	

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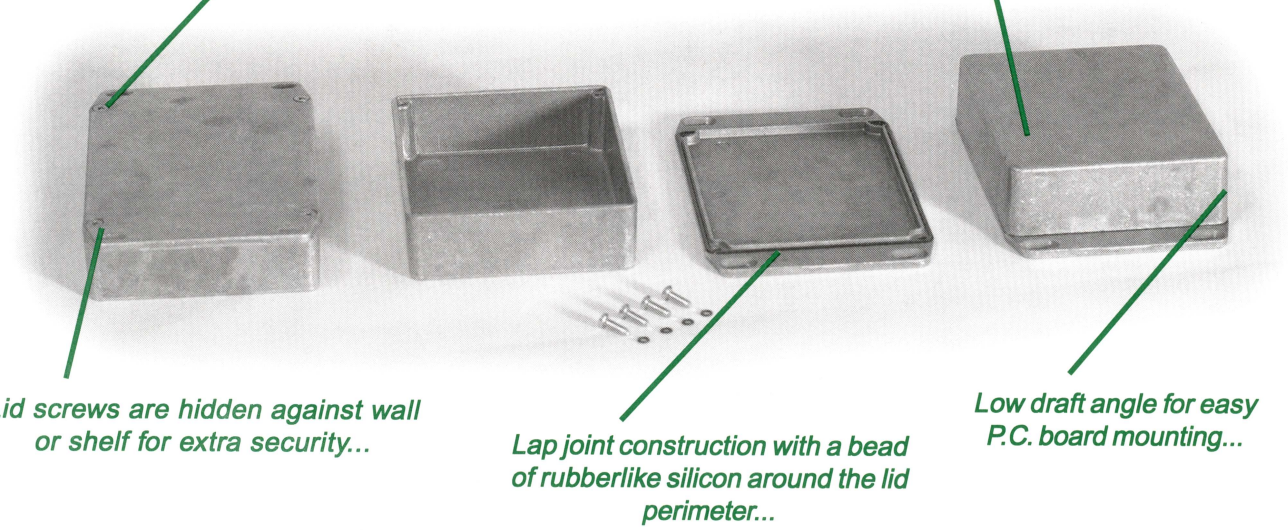
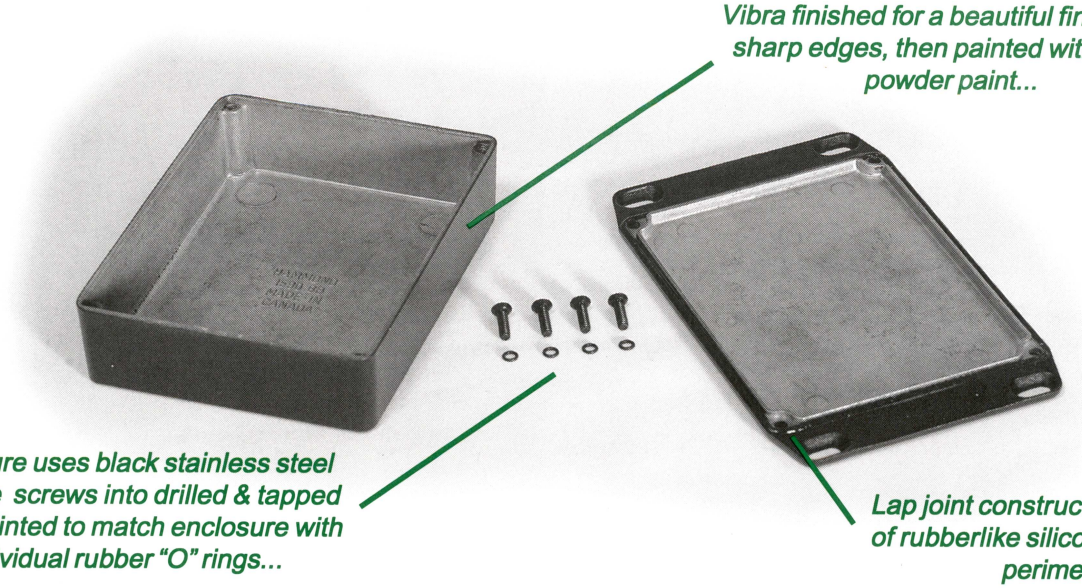
Watertight with Flanged Lid (1590W Series)


Countersunk lid with stainless steel machine screws into drilled and tapped holes with individual neoprene "O" rings...
Vibra finished for a beautiful finish & no sharp edges...
Lid screws are hidden against wall or shelf for extra security...
Lap joint construction with a bead of rubberlike silicon around the lid perimeter...
Low draft angle for easy P.C. board mounting...

KEY FEATURES

- Rugged, diecast aluminum alloy (tough yet easy to machine), electronic instrument enclosure.
- Two piece lap joint construction with a bead of rubberlike silicon around the perimeter provides protection against dust accumulation and water.
- Poured silicon remains flexible from -62 to +232ºC (-80 to +450 ºF)
- Flanged lid allows for easy mounting to walls or shelves.
- These enclosures share the same body and features as our regular type 1590 enclosure except the lid is extended and four countersunk holes are cast into the flanges.
- The flanged lid allows for added security as the lid screws are hidden against the wall or shelf.
- Painted version is painted with tough powder paint for a lasting finish, even after machining.
- Four (or 6 in 1590D, 1590DD & 1590E, 8 in 1590F) 6-32 x 1/2" machine screws secure lid - into tapped holes.
- Designed to meet IP65


Vibra finished for a beautiful finish & no sharp edges, then painted with tough powder paint...
Enclosure uses black stainless steel machine screws into drilled & tapped holes painted to match enclosure with individual rubber "O" rings...
Lap joint construction with a bead of rubberlike silicon around the lid perimeter...

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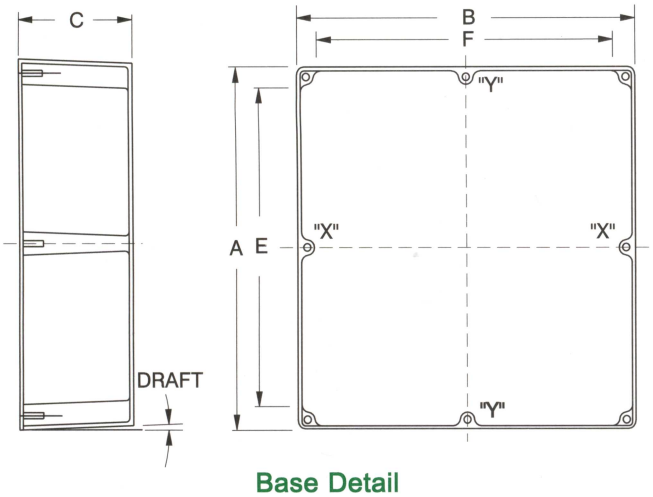
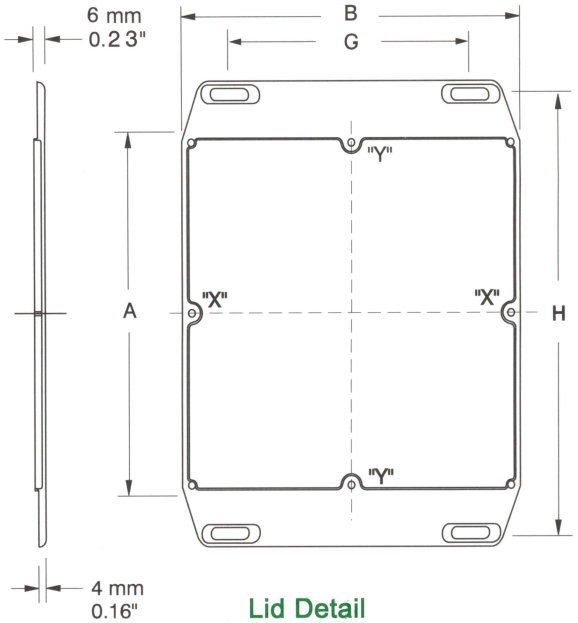
Watertight with Flanged Lid (1590W Series)



Base Detail

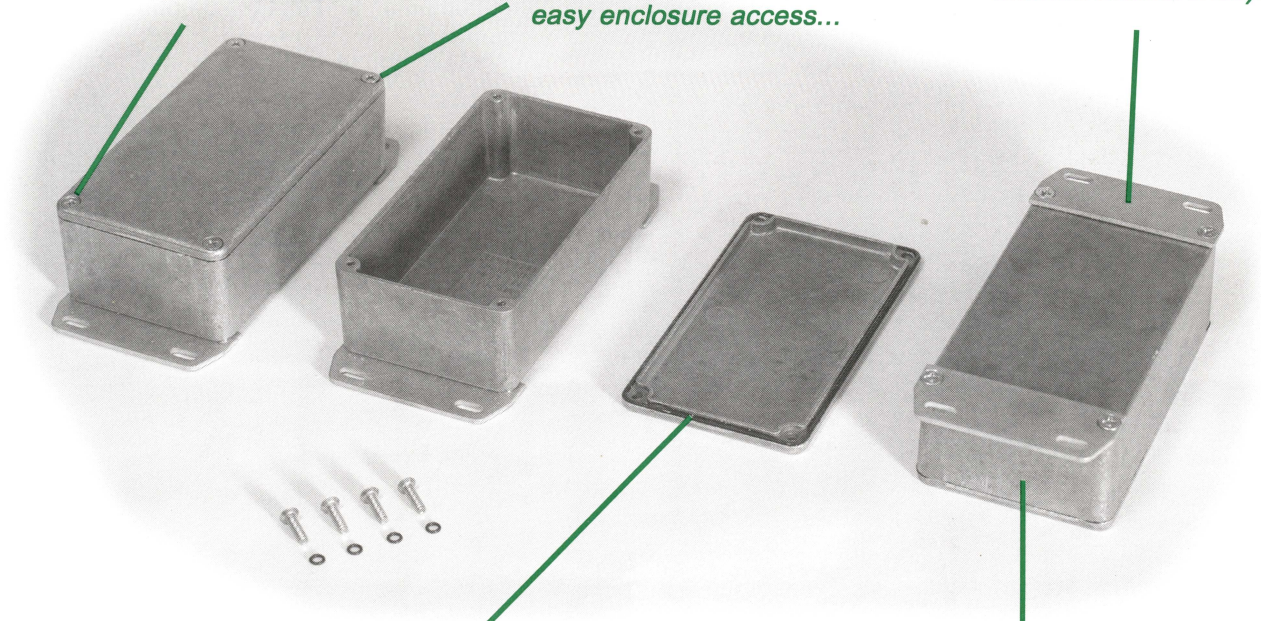


Lid Detail

Notes: - Assembled height = dimension "C" + .16" (4.0 mm)
- Wall & lid thickness is roughly .08" (2 mm) and varies with draft due to part being cast.
- Posts "X" exist on parts 1590D, 1590DD & 1590E
- Posts "X" & "Y" exist on part 1590F
- For detailed drawings, CAD files or technical bulletins visit our website at: ***www.hammondmfg.com***

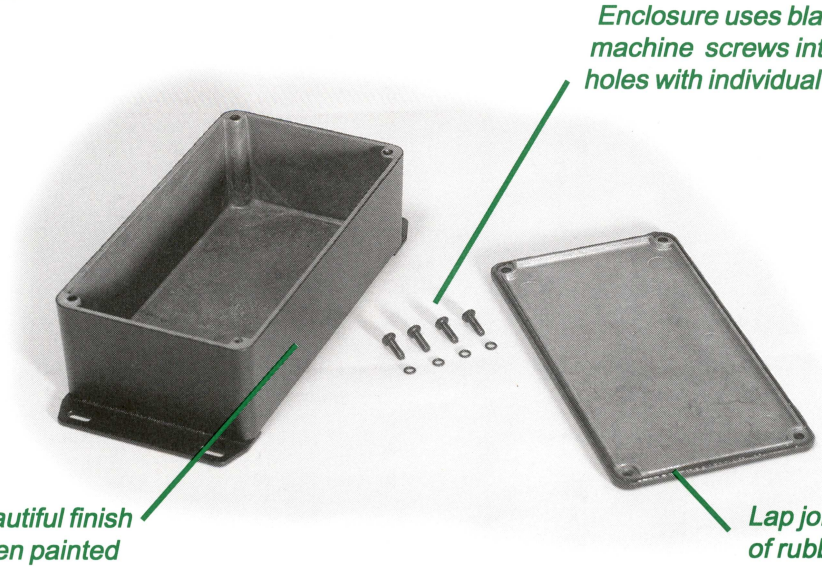
Part Number		Units	Dimensions							Apx. Draft
Unpainted	Black		A	B	C (No Lid)	E	F	G	H	
1590WLBFL	1590WLBFLBK	inch	1.99	1.99	1.06	1.36	1.36	1.04	2.57	1°15'
		mm	50.5	50.5	27	34.5	34.5	26	65	
1590WAFL	1590WAFLBK	inch	3.64	1.52	1.06	3.01	.89	.54	4.32	1°15'
		mm	92.5	38.5	27	76.5	22.5	14	110	
1590WBFL	1590WBFLBK	inch	4.39	2.34	1.06	3.76	1.71	1.40	4.99	1°15'
		mm	111.5	59.5	27	95.5	43.5	35.6	127	
1590WBBFL	1590WBBFLBK	inch	4.67	3.68	1.18	4.04	3.05	2.73	5.38	1°15'
		mm	118.5	93.5	30	102.5	77.5	69	137	
1590WDDFL	1590WDDFLBK	inch	7.40	4.70	1.30	6.77	4.07	3.73	8.08	1°15'
		mm	188	119.5	33	172	103.5	95	205	
1590WN1FL	1590WN1FLBK	inch	4.77	2.60	1.39	4.09	1.92	1.52	5.35	1°15'
		mm	121.1	66	35.3	103.8	38.5	38.5	135.8	
1590WSFL	1590WSFLBK	inch	4.35	3.21	1.57	3.72	2.58	2.26	5.03	1°15'
		mm	110.5	81.5	40	94.5	65.5	57	128	
1590WP1FL	1590WP1FLBK	inch	6.01	3.24	1.81	5.38	2.87	2.20	6.62	2°
		mm	153	82	46	137	73	56	168	
1590WDFL	1590WDFLBK	inch	7.38	4.70	2.05	6.75	4.07	3.73	8.08	2°
		mm	187.5	119.5	52	171.5	103.5	96	205	
1590WCFL	1590WCFLBK	inch	4.72	3.70	2.07	4.09	3.07	2.73	5.38	2°
		mm	120	94	52.5	104	78	69	137	
1590WTFL	1590WTFLBK	inch	4.74	3.13	2.17	4.11	2.50	2.19	5.42	1°15'
		mm	120.5	79.5	55	104.5	63.5	56	138	
1590WUFL	1590WUFLBK	inch	4.70	4.70	2.17	4.07	4.07	3.77	5.42	1°15'
		mm	119.5	119.5	55	103.5	103.5	96	138	
1590WFFL	1590WFFLBK	inch	7.38	7.38	2.48	6.75	6.75	6.43	8.08	2°
		mm	187.5	187.5	63	171.5	171.5	163	205	
1590WEFL	1590WEFLBK	inch	7.38	4.70	3.07	6.75	4.07	3.73	8.08	2°
		mm	187.5	119.5	78	171.5	103.5	96	205	
1590WVFL	1590WVFLBK	inch	4.70	4.70	3.54	4.07	4.07	3.73	5.42	1°15'
		mm	119.5	119.5	90	103.5	103.5	96	138	

Watertight w/ Flange (1590W Series)


Countersunk lid with stainless steel machine screws into drilled and tapped holes with individual neoprene "O" rings...
Lid screws are exposed for easy enclosure access...
Factory installed flanges into reverse side of lid holes (no internal interference)...
Lap joint construction with a bead of rubberlike silicon around the lid perimeter...
Vibra finished for a beautiful finish & no sharp edges...

OTHER KEY FEATURES

- Rugged, diecast aluminum alloy (tough yet easy to machine), electronic instrument enclosure.
- Two piece lap joint construction with a bead of rubberlike silicon around the perimeter provides protection against dust accumulation and water.
- Poured silicon remains flexible from -62 to +232ºC (-80 to +450 ºF)
- Painted version is painted with tough powder paint for a lasting finish, even after machining.
- Four (or 6 in 1590D, 1590DD & 1590E, 8 in 1590F) 6-32 x 1/2" stainless steel machine screws secure lid - into tapped holes.
- Designed to meet IP65


Enclosure uses black stainless steel machine screws into drilled & tapped holes with individual rubber "O" rings...
Vibra finished for a beautiful finish & no sharp edges, then painted with tough powder paint...
Lap joint construction with a bead of rubberlike silicon around the lid perimeter...

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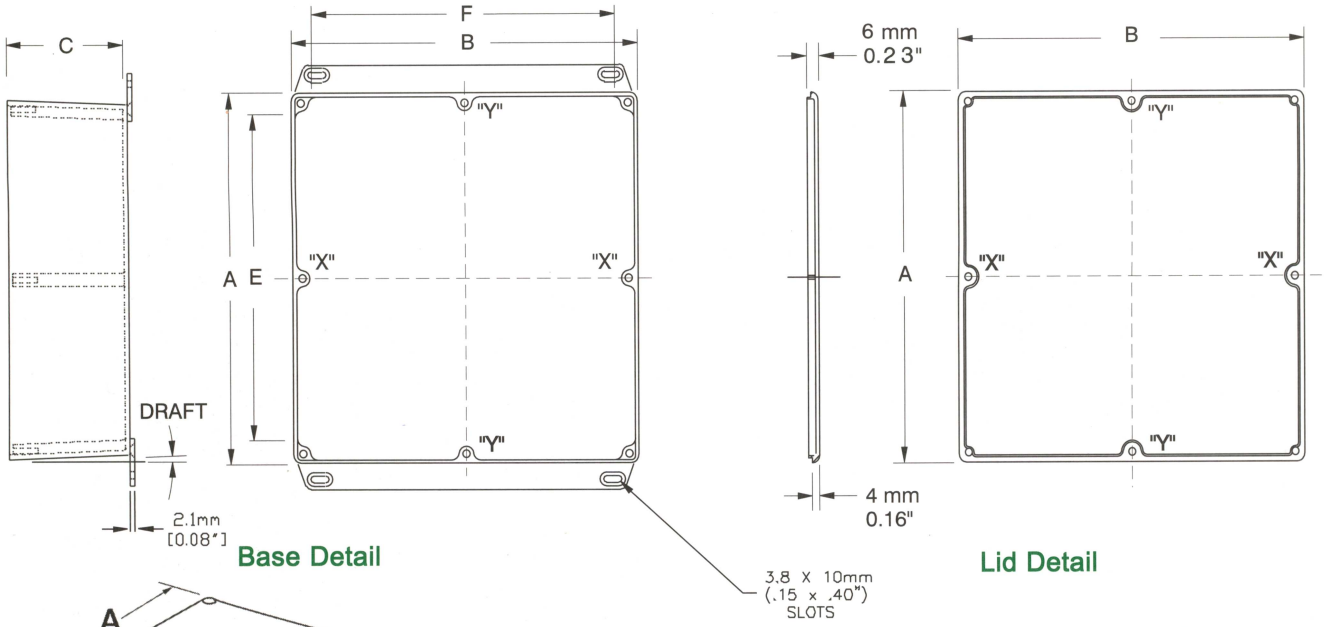
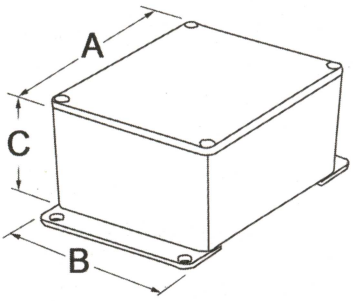
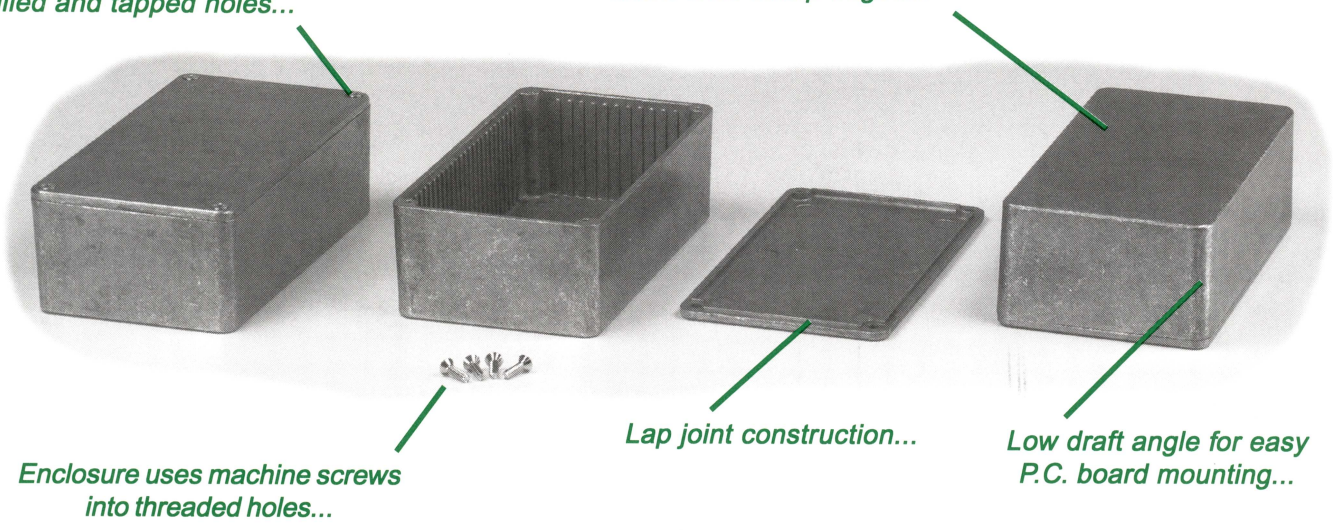




Notes:
- Assembled height = dimension "C" + .16" (4.0 mm)
- Wall & lid thickness is roughly .08" (2 mm) and varies with draft due to part being cast.
- Posts "X" exist on parts 1590D, 1590DD & 1590E
- Posts "X" & "Y" exist on part 1590F
- For detailed drawings, CAD files or technical bulletins visit our website at: ***www.hammondmfg.com***

Part Number		Units	Dimensions					Apx. Draft
Unpainted	Black		A	B	C (No Lid)	E	F	
1590WLBF	1590WLBFBK	inch	1.99	1.99	1.06	1.36	1.36	1°15'
		mm	50.5	50.5	27	34.5	34.5	
1590WAF	1590WAFBK	inch	3.64	1.52	1.06	3.01	.89	1°15'
		mm	92.5	38.5	27	76.5	22.5	
1590WBF	1590WBFBK	inch	4.39	2.34	1.06	3.76	1.71	1°15'
		mm	111.5	59.5	27	95.5	43.5	
1590WBBF	1590WBBFBK	inch	4.67	3.68	1.18	4.04	3.05	1°15'
		mm	118.5	93.5	30	102.5	77.5	
1590WDDF	1590WDDFBK	inch	7.40	4.70	1.30	6.77	4.07	1°15'
		mm	188	119.5	33	172	103.5	
1590WN1F	1590WN1FBK	inch	4.77	2.60	1.39	4.09	1.92	1°15'
		mm	121.1	66	35.3	103.8	48.7	
1590WSF	1590WSFBK	inch	4.35	3.21	1.57	3.72	2.58	1°15'
		mm	110.5	81.5	40	94.5	65.5	
1590WP1F	1590WP1FBK	inch	6.01	3.24	1.81	5.38	2.87	2°
		mm	153	82	46	137	73	
1590WDF	1590WDFBK	inch	7.38	4.70	2.05	6.75	4.07	2°
		mm	187.5	119.5	52	171.5	103.5	
1590WCF	1590WCFBK	inch	4.72	3.70	2.07	4.09	3.07	2°
		mm	120	94	52.5	104	78	
1590WTF	1590WTFBK	inch	4.74	3.13	2.17	4.11	2.50	1°15'
		mm	120.5	79.5	55	104.5	63.5	
1590WUF	1590WUFBK	inch	4.70	4.70	2.17	4.07	4.07	1°15'
		mm	119.5	119.5	55	103.5	103.5	
1590WFF	1590WFFBK	inch	7.38	7.38	2.48	6.75	6.75	2°
		mm	187.5	187.5	63	171.5	171.5	
1590WEF	1590WEFBK	inch	7.38	4.70	3.07	6.75	4.07	2°
		mm	187.5	119.5	78	171.5	103.5	
1590WVF	1590WVFBK	inch	4.70	4.70	3.54	4.07	4.07	1°15'
		mm	119.5	119.5	90	103.5	103.5	

P.C. Card Guide (1590 Series)


Countersunk lid with machine screws into drilled and tapped holes...
Vibra finished for a beautiful finish & no sharp edges...
Enclosure uses machine screws into threaded holes...
Lap joint construction...
Low draft angle for easy P.C. board mounting...

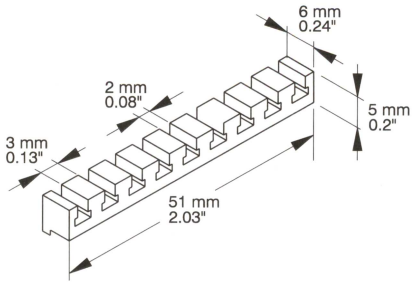
OTHER KEY FEATURES

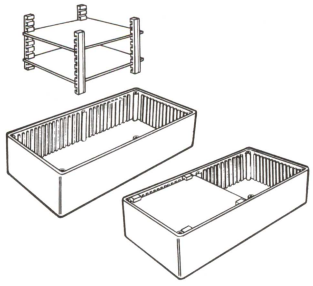
- Rugged, diecast aluminum alloy (tough yet easy to machine), electronic instrument enclosure.
- Two piece lap joint construction provides protection against dust accumulation and splashing water. Also provides for improved EMI/RFI shielding.
- Painted version is painted with tough powder paint for a lasting finish, even after machining.
- Four machine screws secure lid - into tapped holes.
- Designed to meet IP54.

ACCESSORIES

Replacement Screws

Machine type, nickel plated. As used in the P.C. card guide 1590 diecast series (except 1590P & 1590PGY - order 1590MS100)
M3 - 0.5 x 10 mm
1591MS100 - Package of 100





P.C. Board Card Adaptors

Allow for horizontal mounting of P.C. board.
1591Z6 - Package of 6
1591Z50 - Package of 50
1591Z100 - Package of 100

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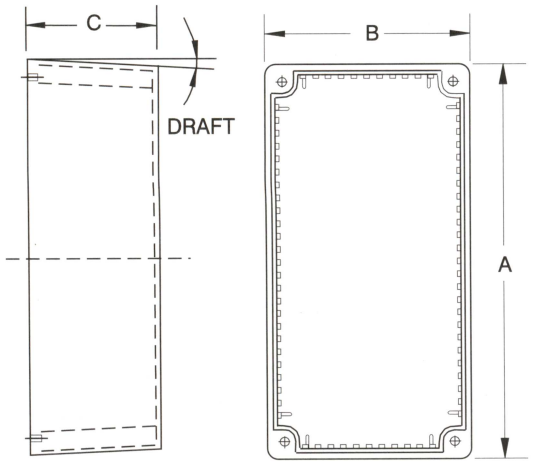
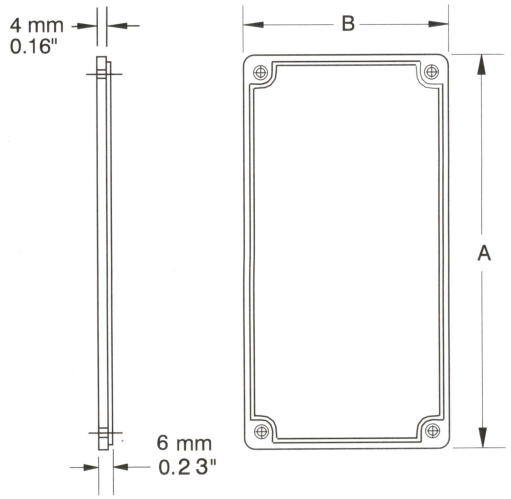


Base Detail



Lid Detail

Notes: - Assembled height = dimension "C" + .16" (4.0 mm)
- Wall & lid thickness is roughly .08" (2 mm) and varies with draft due to part being cast.
- For detailed drawings, CAD files or technical bulletins visit our website at: ***www.hammondmfg.com***

Part Number			Units	Dimensions			Apx. Draft	Screw Thread	Part Number
Unpainted	Black	Grey		A	B	C (No Lid)			Replacement Screws (Pkg. 100)
1590L	1590LBK	1590LGY	inch mm	3.96 101	1.98 50	.83 21	2°	M3-0.5x10mm	1591MS100
1590M	1590MBK	1590MGY	inch mm	4.48 114	2.49 63	1.06 27	2°	M3-0.5x10mm	1591MS100
1590N	1590NBK	1590NGY	inch mm	4.75 121	2.61 66	1.42 36	2°	6-32x1/2"	1590MS100
1590P	1590PBK	1590PGY	inch mm	6.01 153	3.24 82	1.81 46	2°	6-32x1/2"	1590MS100
1590R	1590RBK	1590RGY	inch mm	7.55 192	4.38 111	2.24 57	2°	M3-0.5x10mm	1591MS100

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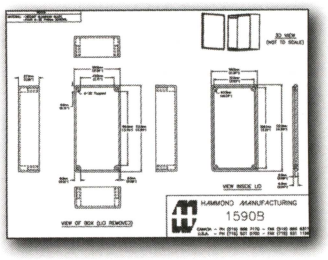

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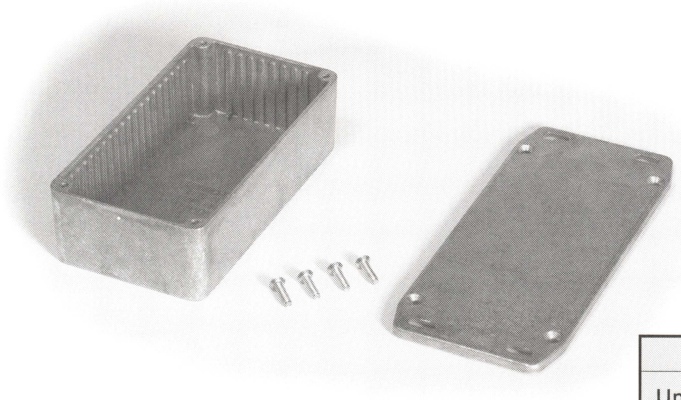
Flanged Lid Version

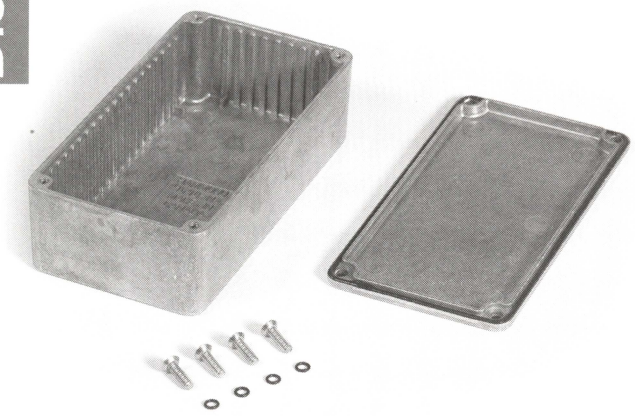


KEY FEATURES

- Same as previous page.
- Lid screws are hidden against wall or shelf for extra security.
- Designed to meet IP54.
- Painted version uses tough powder paint on exterior only.

Part Number		Units	Dimensions			Apx. Draft
Unpainted	Black		A	B	C (No Lid)	
1590NFL	1590NFLBK	inch	4.75	2.61	1.42	2°
		mm	121	66	36	
1590PFL	1590PFLBK	inch	6.01	3.24	1.81	2°
		mm	153	82	46	

Watertight Version

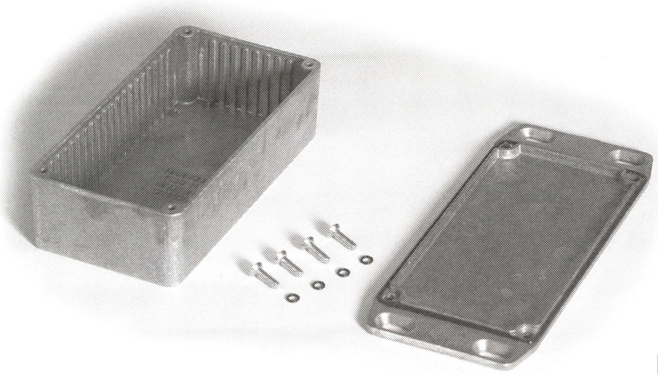


KEY FEATURES

- Same as previous page.
- Bead of rubberlike silicon around lid perimeter.
- Designed to meet IP65.
- Painted version uses tough powder paint on exterior only.

Part Number		Units	Dimensions			Apx. Draft
Unpainted	Black		A	B	C (No Lid)	
1590WN	1590WNBK	inch	4.75	2.61	1.42	2°
		mm	121	66	36	
1590WP	1590WPBK	inch	6.01	3.24	1.81	2°
		mm	153	82	46	

Watertight Flanged Lid Version



KEY FEATURES

- Same as previous page.
- Lid screws are hidden against wall or shelf for extra security.
- Bead of rubberlike silicon around lid perimeter.
- Designed to meet IP65.
- Painted version uses tough powder paint on exterior only.

Part Number		Units	Dimensions			Apx. Draft
Unpainted	Black		A	B	C (No Lid)	
1590WNFL	1590WNFLBK	inch	4.75	2.61	1.42	2°
		mm	121	66	36	
1590WPFL	1590WPFLBK	inch	6.01	3.24	1.81	2°
		mm	153	82	46	

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ACCESSORIES

Replacement Screws

Machine type, nickel plated. As used in the natural finish 1590 diecast series (except 1590L, 1590LGY, 1590M, 1590MGY, 1590N, 1590NGY, 1590R & 1590RGY - see 1591MS100) 6-32 x 1/2"
1590MS100 - Package of 100

Machine type, nickel plated. As used in the 1590 diecast series (1590L, 1590LGY, 1590M, 1590MGY, 1590N, 1590NGY, 1590R & 1590RGY only) M3 - 0.5 x 10 mm
1591MS100 - Package of 100

Machine type painted black as used in the black 1590 diecast series.
6-32 x 1/2"
1590MS50BK - Package of 50

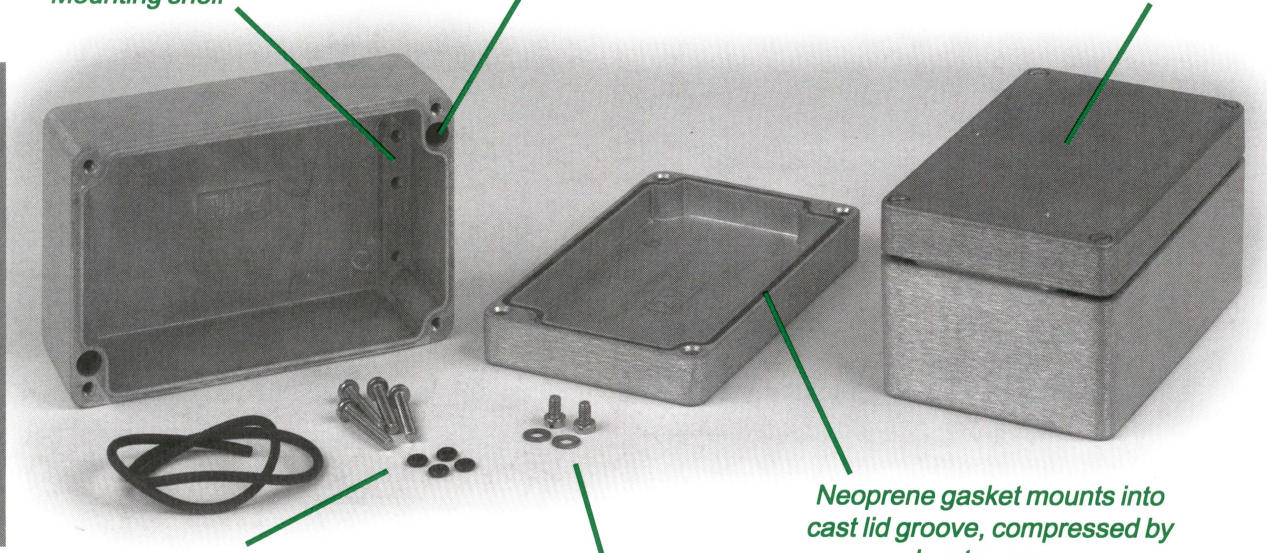
Machine type painted grey as used in the grey 1590 diecast series.
6-32 x 1/2"
1590MS50GY - Package of 50

Stainless steel, machine type as used in the watertight 1590 diecast series.
6-32 x 1/2"
1590WMS100 - Package of 100

Black stainless steel (not painted, they are black chromate finished), machine type as used in the black watertight 1590 diecast series.
6-32 x 1/2"
1590WMS100BK - Package of 100

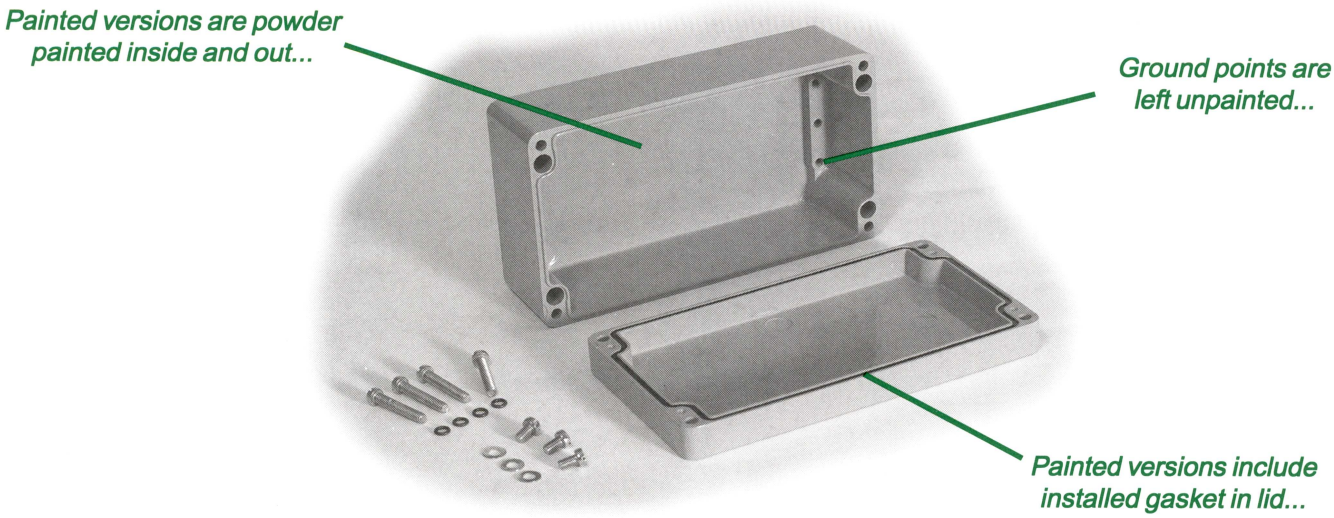
Watertight, heavy duty - thick wall (1590Z Series)

With Mounting Shelf


Mounting shelf
Easy wall mounting via "through box - blind hole" construction, outside of gasket protection...
Natural aluminum with a smooth brushed finish...
Neoprene gasket mounts into cast lid groove, compressed by box tongue...
Stainless steel machine screws into drilled and tapped holes with individual neoprene "O" rings...
Copper ground screws & washers...

KEY FEATURES

- Rugged, diecast aluminum alloy (tough yet easy to machine), electronic instrument enclosure.
- Two piece "tongue & groove" construction with a neoprene gasket provides protection against dust accumulation and water. Ideal for repetitive opening and closing.
- Four recessed stainless steel machine screws secure lid into tapped holes. Screws are self captivating using either individual neoprene "O" rings (outside the lid gasket seal) or using screw captivating lid.
- Designed to meet IP65.
- Painted versions are painted inside and out with a tough powder paint. Choice of grey (RAL 7001) or black


Painted versions are powder painted inside and out...
Ground points are left unpainted...
Painted versions include installed gasket in lid...

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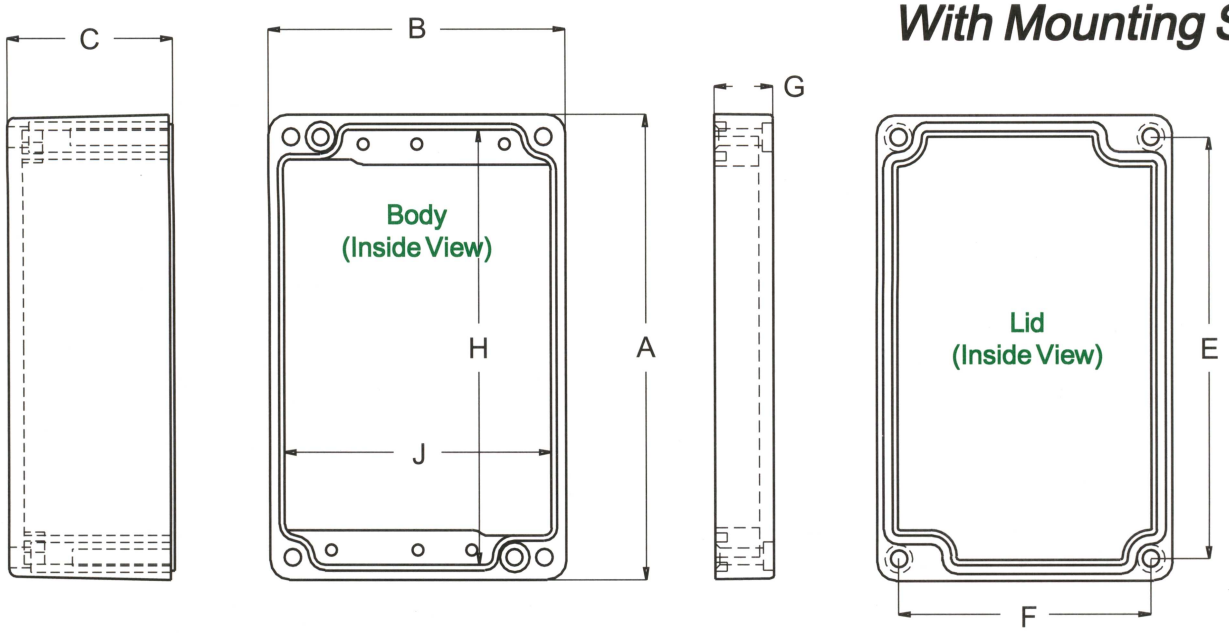
Watertight, heavy duty - thick wall (1590Z Series)

With Mounting Shelf



With Mounting Shelf

Part Number			Units	Dimensions								Lid Grounding Screw	Mounting Shelf
Unpainted	Black	Grey		A	B	C (No Lid)	E	F	G	H	J		
1590Z100	1590Z100BK	1590Z100GY	inch	2.94	3.14	1.57	2.49	2.68	.47	2.64	2.84	No	Yes
			mm	75	80	40	63	68	12	67	72		
1590Z119	1590Z119BK	1590Z119GY	inch	4.80	4.72	2.36	4.14	4.09	.80	4.45	4.36	Yes	Yes
			mm	122	120	60	105	104	20	113	111		
1590Z120	1590Z120BK	1590Z120GY	inch	4.92	3.15	1.72	4.46	2.68	.62	4.61	2.84	No	Yes
			mm	125	80	43	113	68	15	117	72		
1590Z150	1590Z150BK	1590Z150GY	inch	8.70	4.76	2.39	8.07	4.09	.79	8.31	4.37	No	Yes
			mm	220	120	60	205	104	20	211	111		
1590Z160	1590Z160BK	1590Z160GY	inch	6.30	6.30	2.76	5.55	5.55	.79	5.98	5.98	Yes	Yes
			mm	160	160	70	141	141	20	152	152		
1590Z162	1590Z162BK	1590Z162GY	inch	10.24	6.25	2.75	9.38	5.50	.79	9.83	5.94	Yes	Yes
			mm	260	159	70	238	140	20	249	151		
1590Z231	1590Z231BK	1590Z231GY	inch	7.88	8.71	3.63	7.10	8.28	.80	7.62	8.45	Yes	Yes
			mm	200	221	92	180	210	20	194	215		

For detailed drawings, CAD files or technical bulletins visit our website at:
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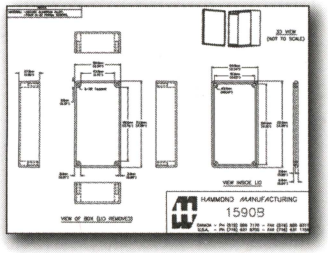

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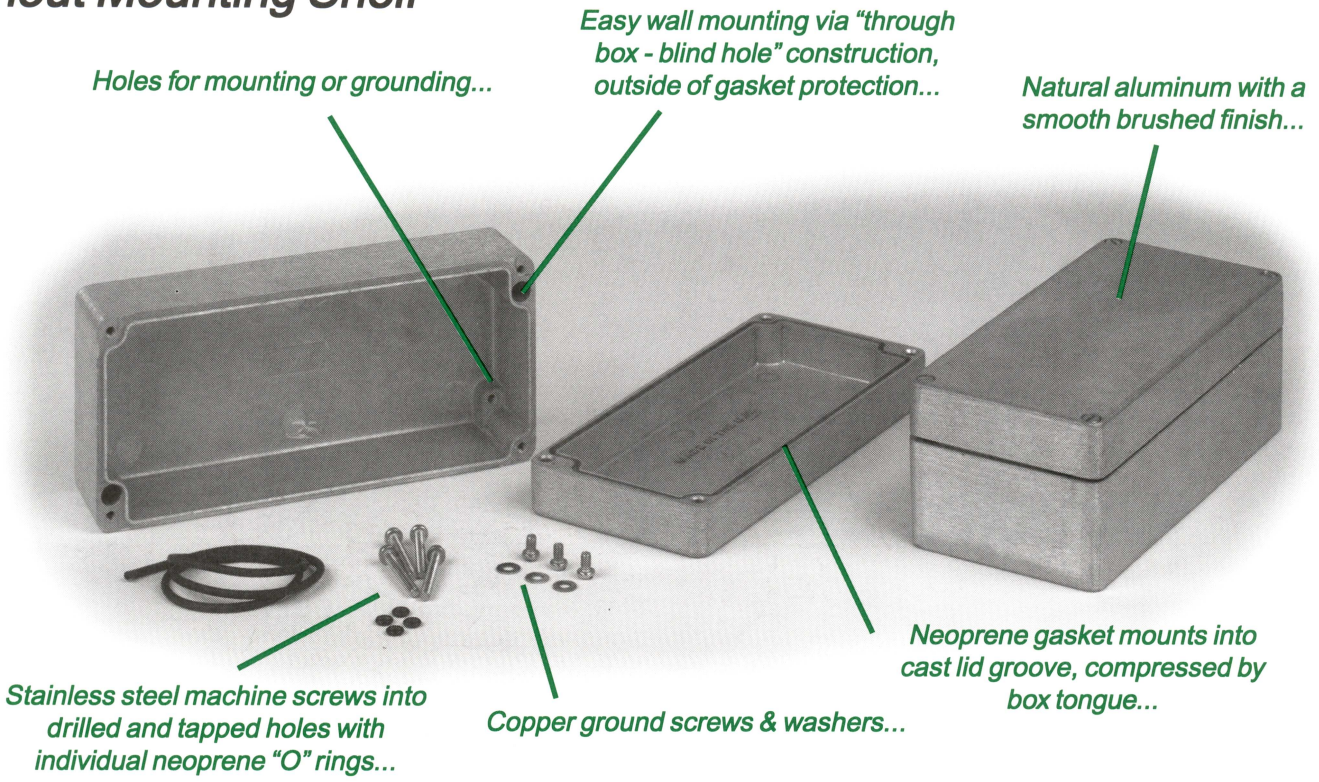
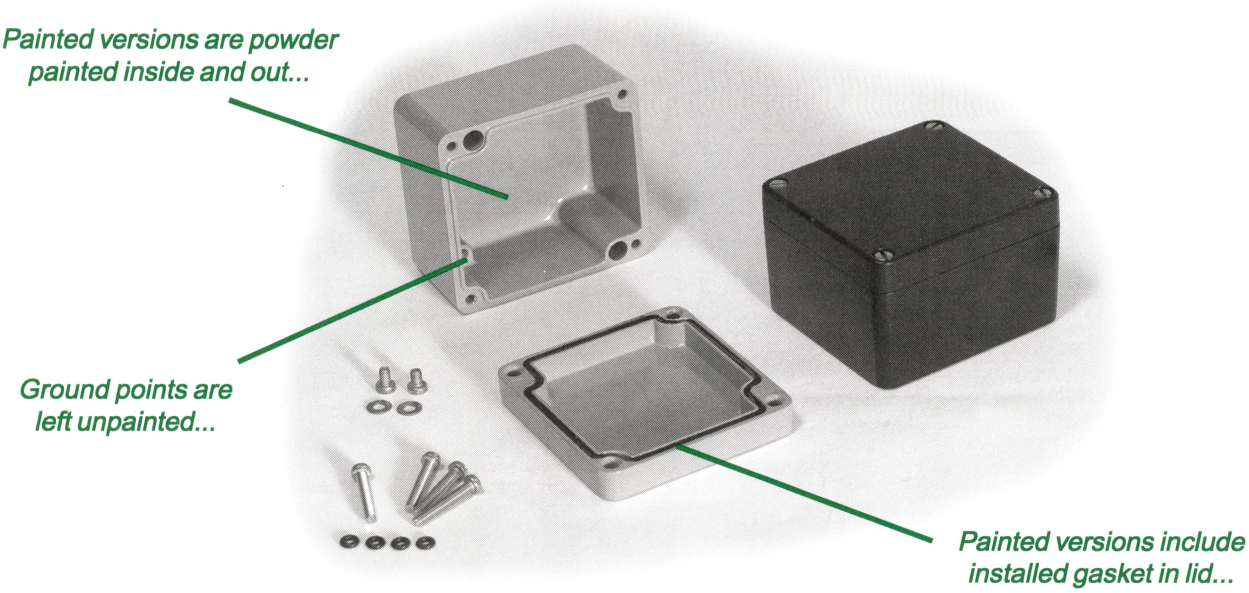
Watertight, heavy duty - thick wall (1590Z Series)

Without Mounting Shelf


Holes for mounting or grounding...
Easy wall mounting via "through box - blind hole" construction, outside of gasket protection...
Natural aluminum with a smooth brushed finish...
Stainless steel machine screws into drilled and tapped holes with individual neoprene "O" rings...
Copper ground screws & washers...
Neoprene gasket mounts into cast lid groove, compressed by box tongue...

KEY FEATURES

- Rugged, diecast aluminum alloy (tough yet easy to machine), electronic instrument enclosure.
- Two piece "tongue & groove" construction with a neoprene gasket provides protection against dust accumulation and water. Ideal for repetitive opening and closing.
- Four recessed stainless steel machine screws secure lid into tapped holes. Screws are self captivating using either individual neoprene "O" rings (outside the lid gasket seal) or using screw captivating lid.
- Designed to meet IP65.
- Painted versions are painted inside and out with a tough powder paint. Choice of grey (RAL 7001) or black


Painted versions are powder painted inside and out...
Ground points are left unpainted...
Painted versions include installed gasket in lid...

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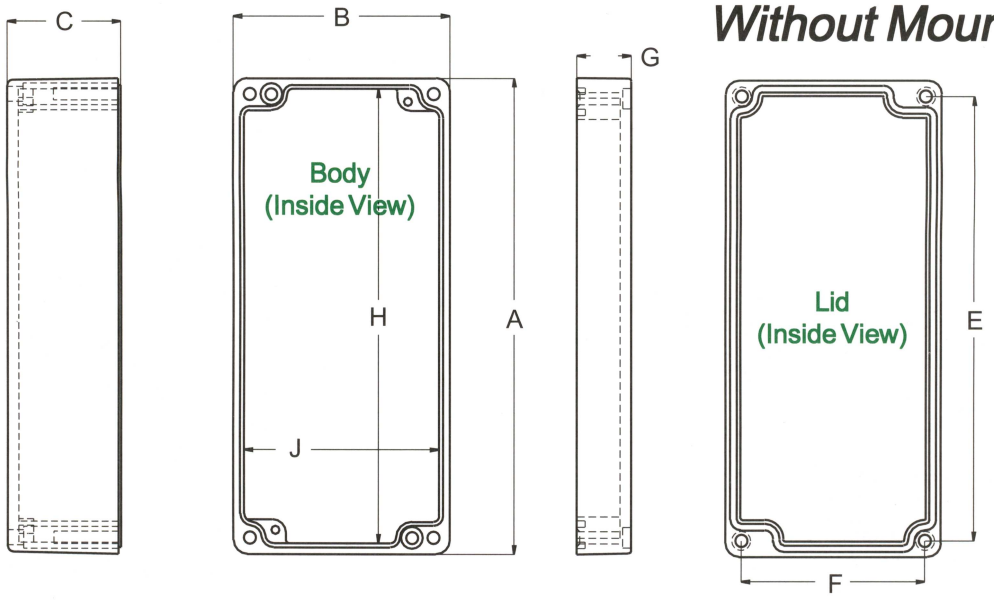
Watertight, heavy duty - thick wall (1590Z Series)

Without Mounting Shelf



Without Mounting Shelf

Part Number			Units	Dimensions								Lid Grounding Screw	Mounting Shelf
Unpainted	Black	Grey		A	B	C (No Lid)	E	F	G	H	J		
1590Z060	1590Z060BK	1590Z060GY	inch	1.98	1.77	.95	1.62	1.44	.24	1.77	1.57	Yes	No
			mm	50	45	24	41	37	6	45	40		
1590Z061	1590Z061BK	1590Z061GY	inch	2.51	2.29	1.03	2.04	1.80	.39	2.21	1.97	No	No
			mm	64	58	26	52	46	10	56	50		
1590Z062	1590Z062BK	1590Z062GY	inch	3.86	2.52	1.03	3.40	2.00	.39	3.50	2.20	No	No
			mm	98	64	26	86	52	10	90	56		
1590Z063	1590Z063BK	1590Z063GY	inch	5.89	2.51	1.03	5.42	2.02	.39	5.60	2.20	No	No
			mm	150	64	26	138	51	10	142	56		
1590Z110	1590Z110BK	1590Z110GY	inch	2.94	3.14	1.57	2.49	2.68	.47	2.64	2.84	No	No
			mm	75	80	40	63	68	12	67	72		
1590Z130	1590Z130BK	1590Z130GY	inch	6.89	3.15	1.61	6.43	2.68	.47	6.56	2.84	No	No
			mm	175	80	40	163	68	12	167	72		
1590Z135	1590Z135BK	1590Z135GY	inch	6.89	3.15	1.61	6.43	2.68	.79	6.56	2.84	Yes	No
			mm	175	80	40	163	68	20	167	72		

For detailed drawings, CAD files or technical bulletins visit our website at:
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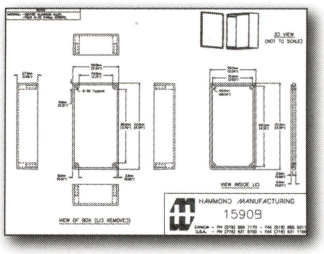

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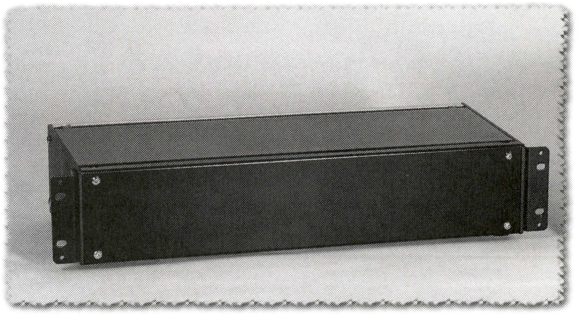
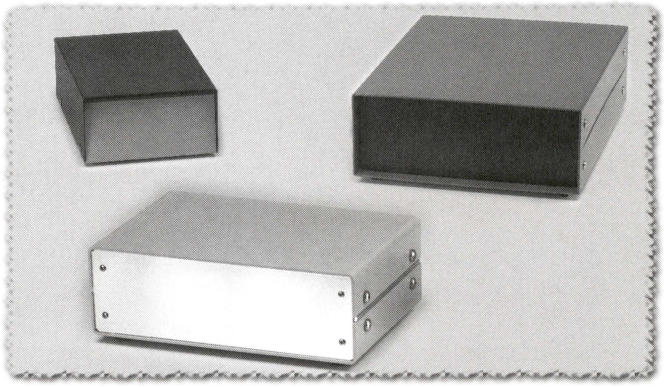
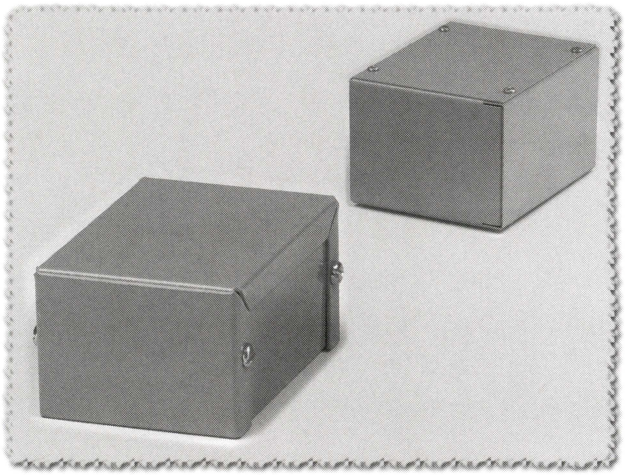
General Purpose Metal

Rack Mount/Table Top Type
RMCS & RMCV Series
Pages 54-55

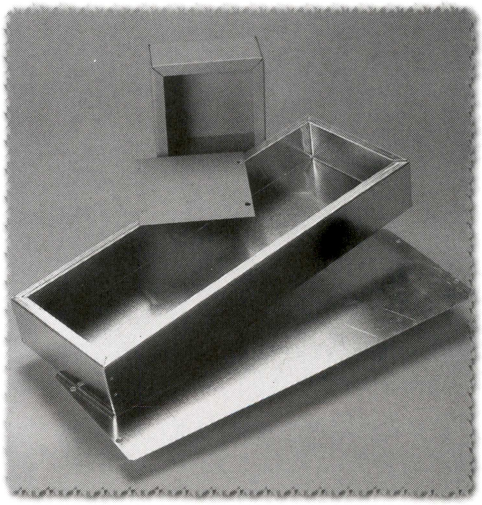


Instrument Type
1401, 1402, 1426, 1452, 1454 & 1458 Series
Pages 56-62

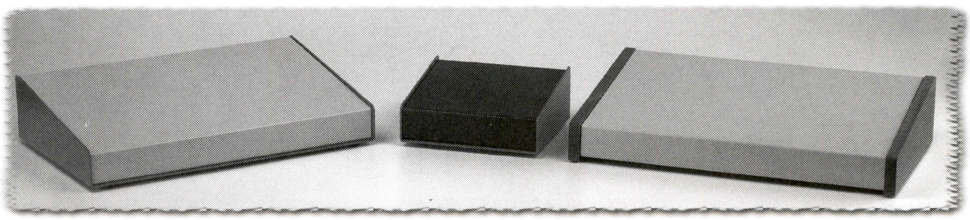




Utility Type
1411 & 1415 Series
Pages 67-68



Chassis
1431, 1434, 1441 & 1444 Series
Pages 69-71



Sloping Consoles
1456 & SCEM Series
Pages 63-66

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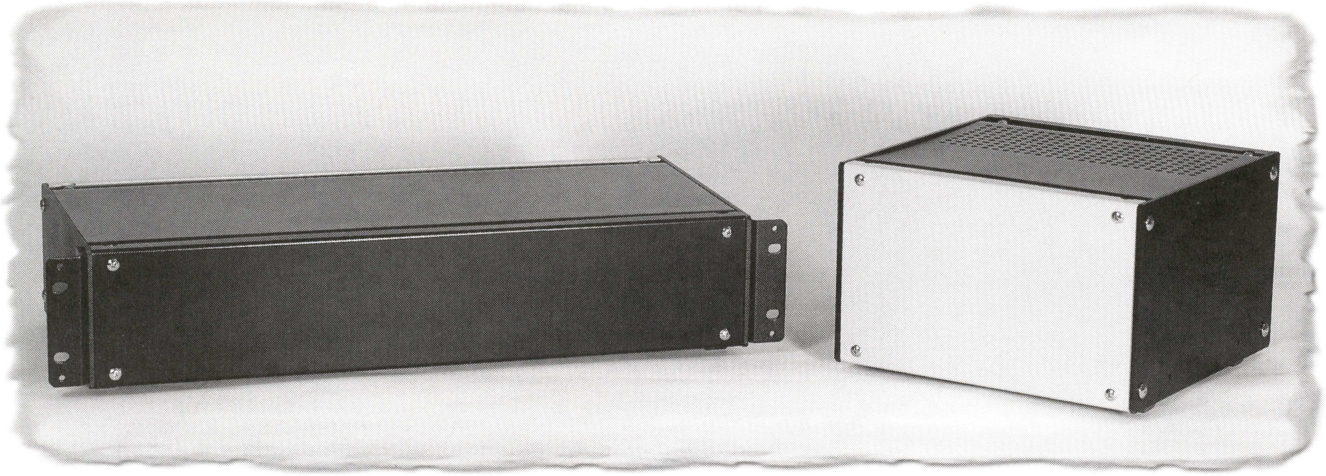
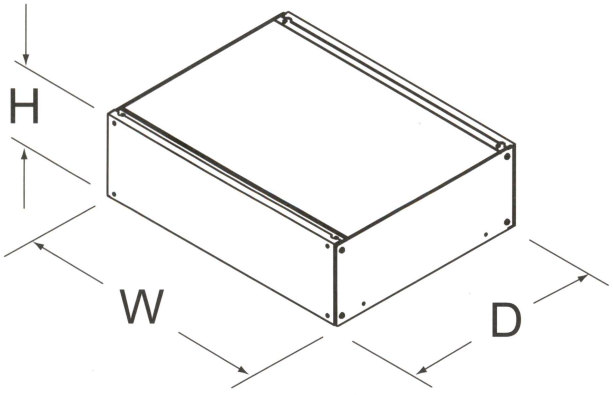
Rack Mount Instrument (RMCS & RMCV Series)

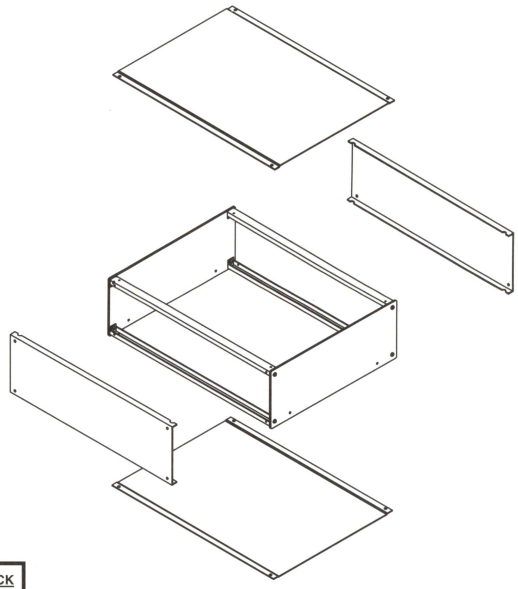


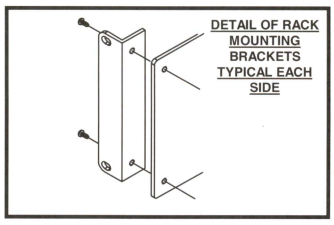
KEY FEATURES

- Perfect for rack mount or table top applications or both!
- Shipped knocked down to avoid shipping damage.
- Easy assembly
- Strong construction using .062" (1.58 mm) top and bottom panels
- Light weight design by using aluminum panels
- .125" (3.18 mm) side panels and horizontal support bars
- Can be used with or without rack mounting brackets (included)
- Front and rear panels are interchangeable (one is off white, the other is smooth black)
- Enclosure is finished in textured black
- Includes top, bottom, sides, feet, rackmount brackets and all hardware
- Easy access to inside, as only 4 screws need to be removed from any panel
- Chassis panel is optional
- Available in both 19" rack mount and half width
- Available in both vented and unvented versions

General Purpose Metal







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19" RACK MOUNT (SOLID TOP & BOTTOM)

Part Number	Height (In.)	Height (Units)	Width (In.)	Depth (In.)	Accepts Pull Handle
RMCS19018BK1	1.75	1	17	8	No
RMCS190113BK1	1.75	1	17	13	No
RMCS19038BK1	3.50	2	17	8	1427P
RMCS190313BK1	3.50	2	17	13	1427P
RMCS190513BK1	5.25	3	17	13	1427N
RMCS190713BK1	7.00	4	17	13	1427M
RMCS190813BK1	8.75	5	17	13	1427M
RMCS191013BK1	10.50	6	17	13	1427L
RMCS191015BK1	10.50	6	17	15	1427L

19" RACK MOUNT (VENTILATED TOP & BOTTOM)

Part Number	Height (In.)	Height (Units)	Width (In.)	Depth (In.)	Accepts Pull Handle
RMCV19018BK1	1.75	1	17	8	No
RMCV190113BK1	1.75	1	17	13	No
RMCV19038BK1	3.50	2	17	8	1427P
RMCV190313BK1	3.50	2	17	13	1427P
RMCV190513BK1	5.25	3	17	13	1427N
RMCV190713BK1	7.00	4	17	13	1427M
RMCV190813BK1	8.75	5	17	13	1427M
RMCV191013BK1	10.50	6	17	13	1427L
RMCV191015BK1	10.50	6	17	15	1427L

HALF WIDTH - RACK MOUNT (SOLID TOP & BOTTOM)

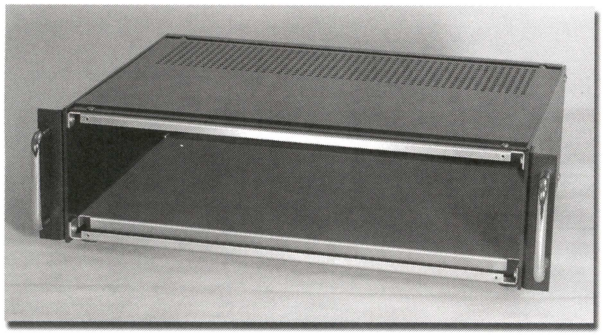
Part Number	Height (In.)	Height (Units)	Width (In.)	Depth (In.)	Accepts Pull Handle
RMCS9018BK1	1.75	1	8.5	8	No
RMCS9038BK1	3.50	2	8.5	8	1427P
RMCS9058BK1	5.25	3	8.5	8	1427P

HALF WIDTH - RACK MOUNT (VENTILATED TOP & BOTTOM)

Part Number	Height (In.)	Height (Units)	Width (In.)	Depth (In.)	Accepts Pull Handle
RMCV9018BK1	1.75	1	8.5	8	No
RMCV9038BK1	3.50	2	8.5	8	1427P
RMCV9058BK1	5.25	3	8.5	8	1427P

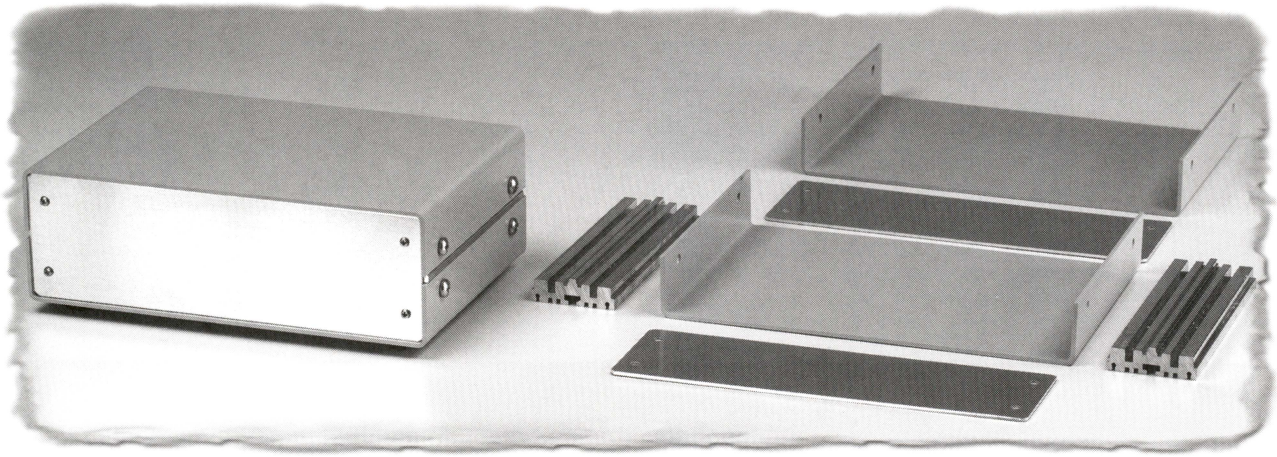
CHASSIS PANELS

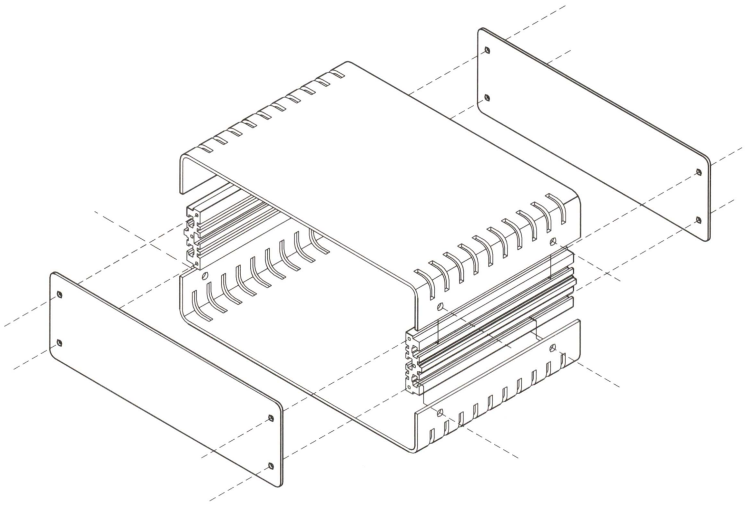
- Holes provided for bottom mounting (as shown below)
- Panel is aluminum with a gold alodine finish



Part Number	Use with enclosure	
	Width (In.)	Depth (In.)
RMP908	8.5	8
RMP1908	17	8
RMP1913	17	13
RMP1915	17	15

Instrument (1402 Series)





General Purpose Metal

KEY FEATURES

- Top and bottom made from 12 gauge aluminum finished in contempra grey.
- Top and bottom are attached to an internal aluminum extrusion which contains mounting slots for printed circuit boards or panels.
- Front and rear panels are natural aluminum (paper coated one side) which are attached with screws to the aluminum mounting extrusion.
- Panels can be easily removed for access to components.
- Tops and bottoms are available in solid or with vent slots.
- All hardware and self-adhesive rubber feet are included.

Part Number		Units	Dimensions							Fits Eurocard Sizes
Solid Top and Base	Vented Top and Base		A	B	C	D	E	F	G	
1402B	1402BV	inch	2.4	7.1	4.9	6.34	6.16	3.93	10	160 x 100
		mm	60	181	112	161	156.5	99.82		
1402D	1402DV	inch	2.4	7.1	7.3	6.34	6.16	5.68	14	160 x 160
		mm	60	181	185	161	156.5	144.27		
1402F	1402FV	inch	3.1	7.1	10.3	6.34	6.16	9.18	22	160 x 234
		mm	80	181	261	161	156.5	233.2		
1402H	1402HV	inch	3.9	10.0	7.3	9.25	9.07	5.68	14	234 x 160
		mm	99	254	185	235	230.4	144.3		
1402K	1402KV	inch	3.9	10.0	9.6	9.25	9.07	8.30	20	234 x 220
		mm	99	254	244	235	230.4	210.8		

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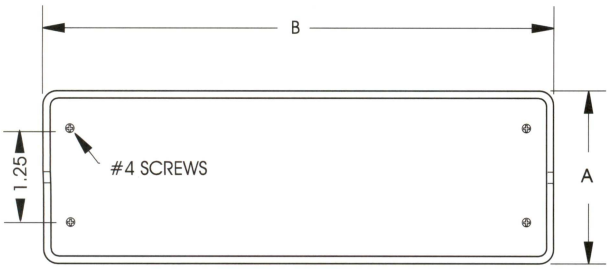
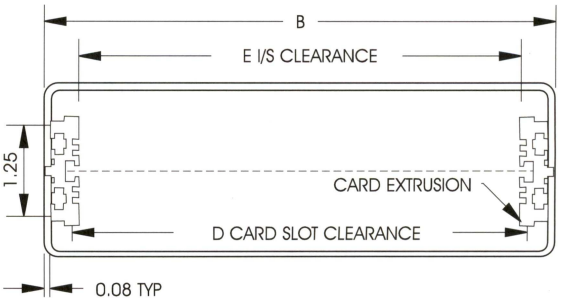
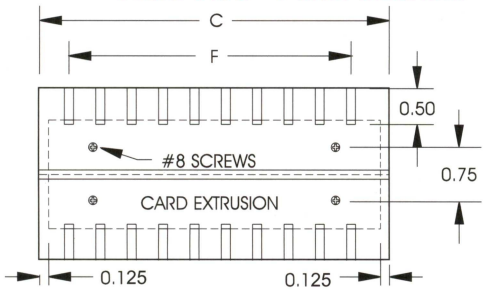


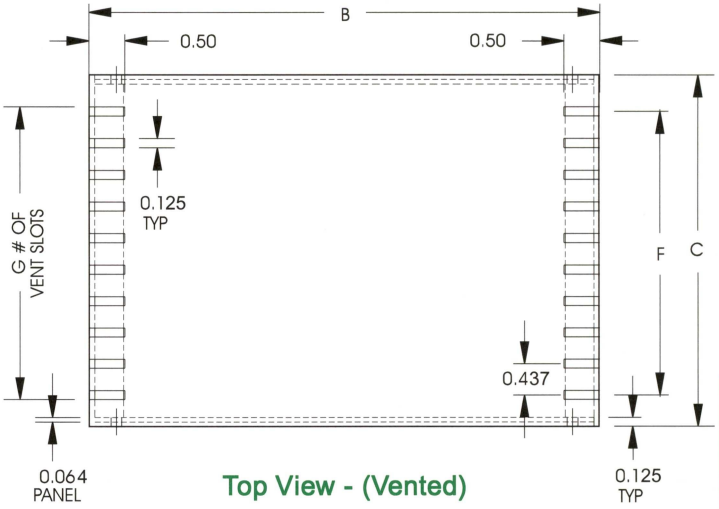
Front View - Panel Mounted



Front View - Panel Removed

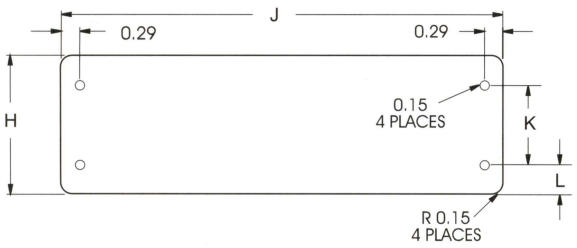


Top View (Vented)



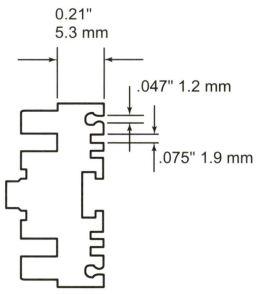
Top View - (Vented)

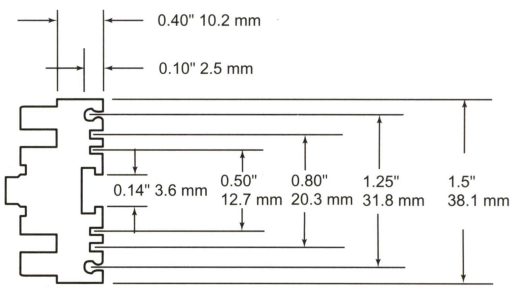
Front & Rear Panel Detail



Panel for:	Units	Dimensions			
		H	J	K	L
1402B	inch	2.19	6.95	1.25	.468
	mm	55.63	176.53	31.75	11.89
1402D	inch	2.19	6.95	1.25	.468
	mm	55.63	176.53	31.75	11.89
1402F	inch	2.94	6.95	1.25	.843
	mm	74.68	176.53	31.75	21.4
1402H	inch	3.69	9.86	1.25	1.22
	mm	93.73	250.44	31.75	30.99
1402K	inch	3.69	9.86	1.25	1.22
	mm	93.73	250.44	31.75	30.99

Right & Left Side Extrusion Detail





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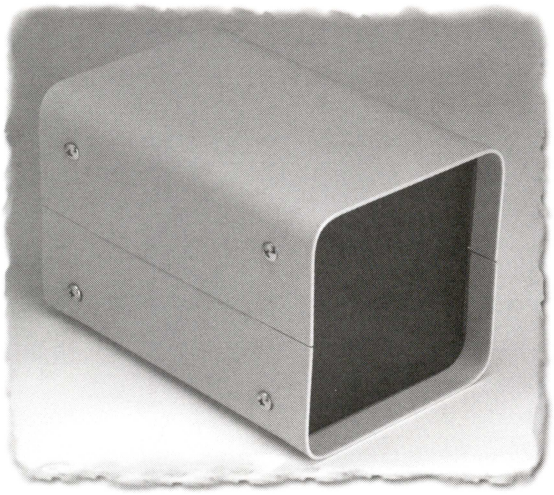
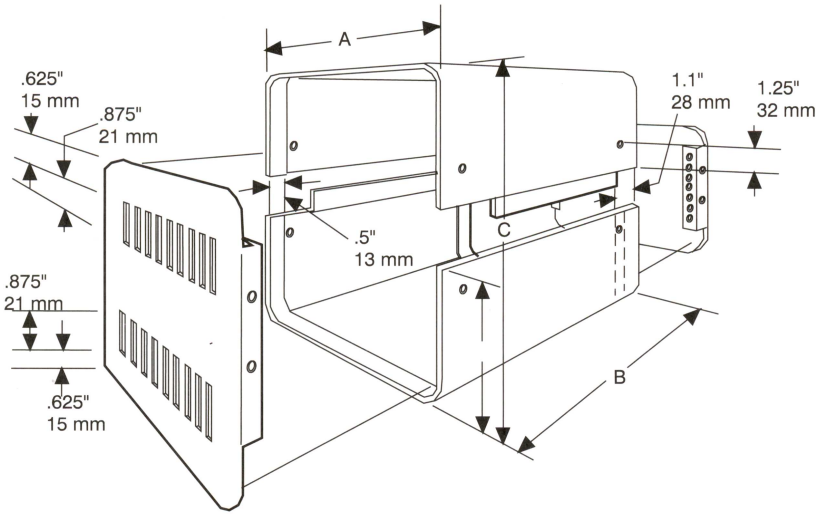
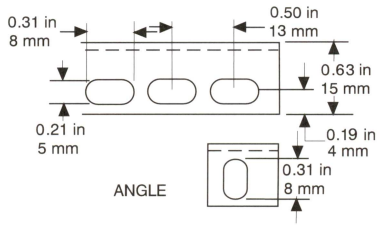




KEY FEATURES

- 20 gauge steel top & bottom halves finished in contempra grey.
- 0.064" thick aluminum panels, front finished in satin black and vented back finished in contempra grey.
- Rear panel is vented top and bottom
- 6-32 Philips nickel plated screws and self-adhesive rubber feet included.
- Replacement screws **1421J6** (Pkg. of 6, 6-32 philips head screws).

Part Number	Units	Dimensions		
		A	B	C
1401AAA	inch	4	6	4
	mm	101	152	101
1401AA	inch	6	6	5
	mm	152	152	127
1401A	inch	6	10	5
	mm	152	254	127
1401C	inch	8	10	9
	mm	203	254	229
1401E	inch	8	8	8
	mm	203	203	203
1401G	inch	10	12	9
	mm	254	305	229
1401K	inch	10	14	6.5
	mm	254	356	165
1401M	inch	12	8	9
	mm	305	203	229
1401N	inch	14	8	9
	mm	356	203	229
1401P	inch	14	10	5
	mm	356	254	127



Mounting Rails

- Includes 1 rail, 2 "L" angle brackets, 4 clips and 4 screws per part.

Part Number	Units	Rail length
1448R6	inch	5.6
	mm	142
1448R8	inch	7.6
	mm	193
1448R10	inch	9.6
	mm	244
1448R12	inch	11.6
	mm	295
1448R14	inch	13.6
	mm	345
1448A20		Package of 20 angles, clips, & screws

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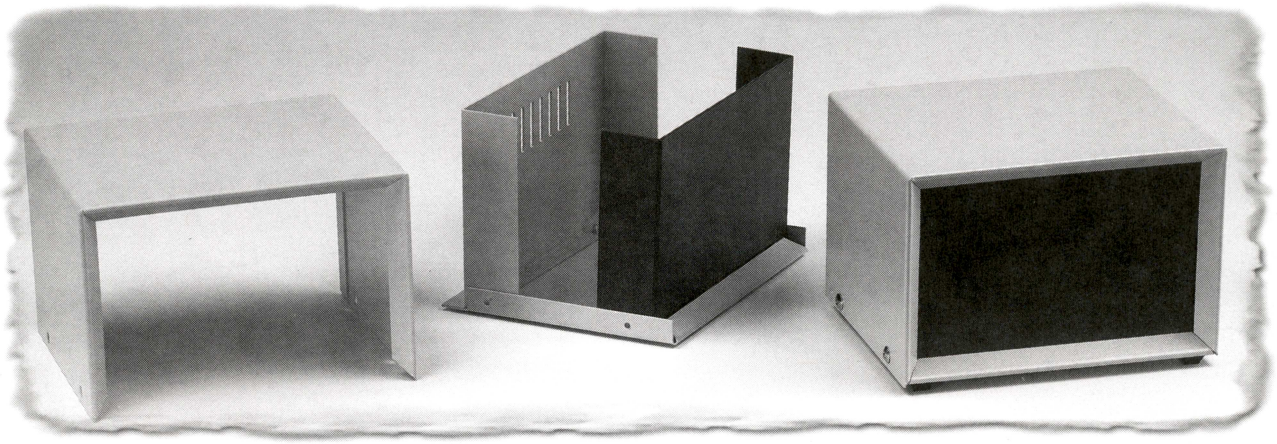

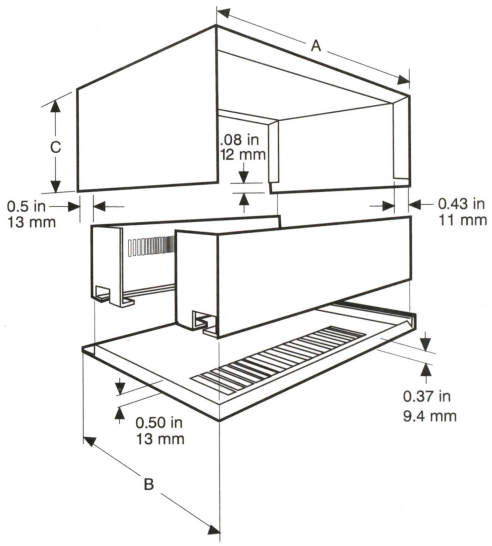

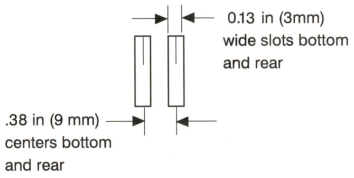

KEY FEATURES

- Top and bottom made in 20 gauge steel (for strength) finished in contempra grey or satin gulf blue.
- Easy to machine 0.064" thick aluminum panels front and rear.
- Rear panel and bottom of enclosure is vented.
- Front panel is satin black, rear panel matches case color.
- 6-32 Philips nickel plated screws and self-adhesive rubber feet included.
- Replacement screws **1421J6** (Pkg. of 6, 6-32 philips head screws).

Part Number		Units	Dimensions		
Off White	Satin Blue		A	B	C
1426K	1426K-B	inch	6	5	4
		mm	152	127	102
1426M	1426M-B	inch	8	6	4
		mm	203	152	102
1426O	1426O-B	inch	10	7	4
		mm	254	178	102
1426Q	1426Q-B	inch	11	11.7	5.5
		mm	279	297	140
1426S	1426S-B	inch	12	6	4
		mm	305	152	102
1426V	1426V-B	inch	12	8	4
		mm	305	203	102
1426W	1426W-B	inch	12	10	4
		mm	305	254	102
1426Y	1426Y-B	inch	12	6	5.5
		mm	305	152	140

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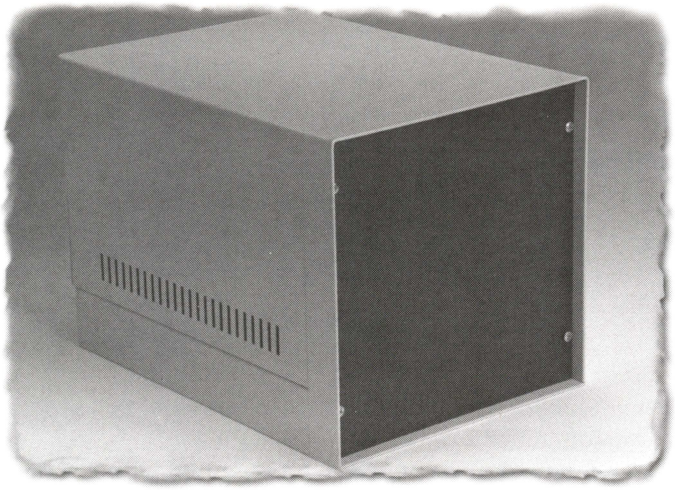
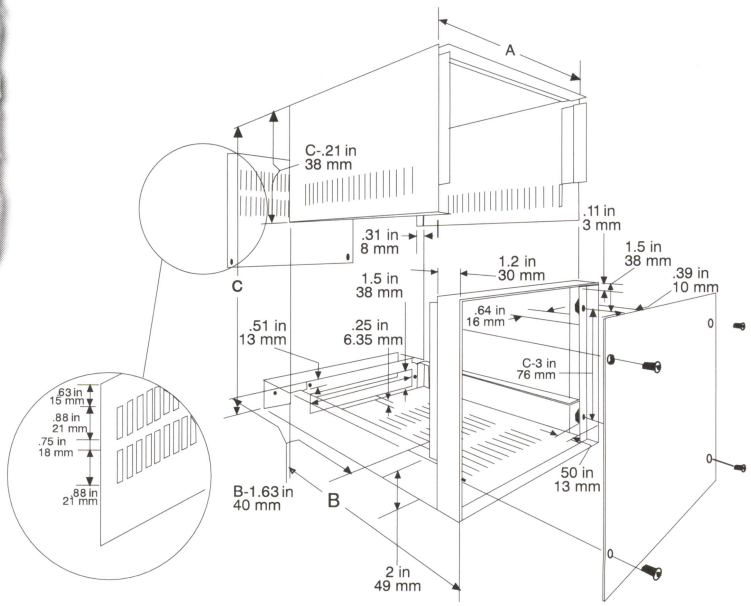
Instrument (1452 Series)





General Purpose Metal

KEY FEATURES

- 20 gauge steel cover and 18 gauge base and frame (for strength) finished in contempra grey.
- Easy to machine .064" thick aluminum panel painted satin black one side only.
- Philips nickel plated screws and self-adhesive rubber feet included.
- Replacement screws **1421J6** (Pkg. of 6, 6-32 philips head screws).

Part Number	Units	Dimensions		
		A	B	C
1452DE11	inch	7.5	10.9	8.5
	mm	191	277	216
1452FF13	inch	9.5	12.9	9.5
	mm	241	328	241
1452FH17	inch	9.5	16.9	11.5
	mm	241	429	292
1452GC6	inch	10.5	5.9	6.5
	mm	267	150	165
1452HD7	inch	11.5	6.9	7.5
	mm	292	175	191
1452KE9	inch	13.5	8.9	8.5
	mm	343	226	216
1452PG9	inch	17.5	8.9	10.5
	mm	445	226	267

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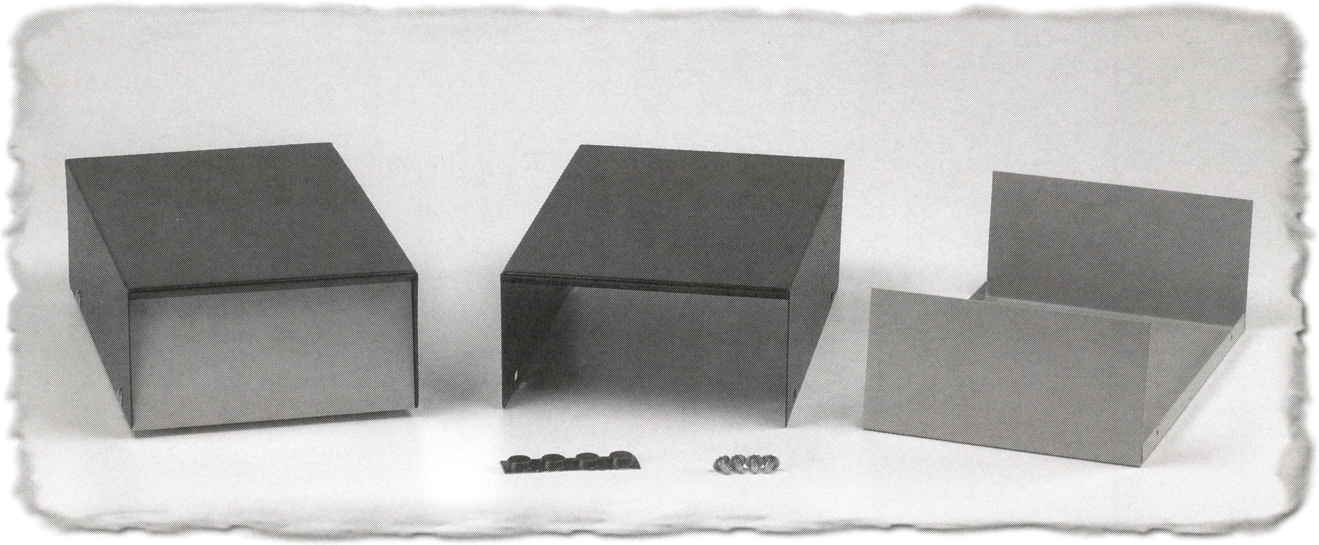
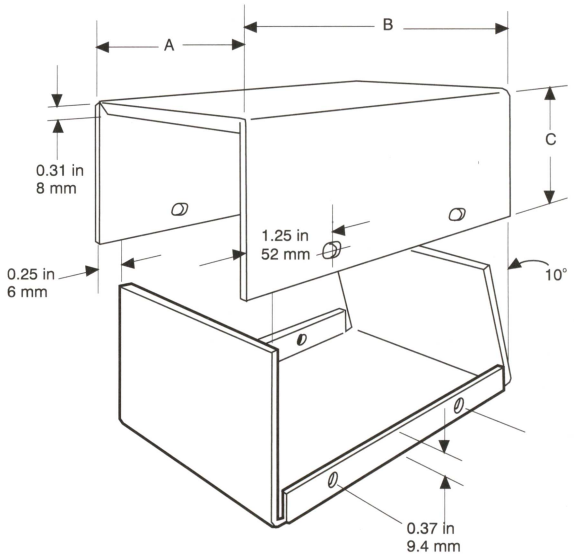


KEY FEATURES

- Made of strong, economical 20 gauge steel.
- Contempra grey panels with textured black covers.
- Choice of sloping or vertical front panels by reversing case.
- 6-32 Philips nickel plated screws and self-adhesive rubber feet included.
- Replacement screws **1421J6** (Pkg. of 6, 6-32 philips head screws).

Part Number	Units	Dimensions		
		A	B	C
1454C	inch	4	2.5	2
	mm	102	64	51
1454E	inch	4	5	2
	mm	102	127	51
1454F	inch	4	6	3
	mm	102	152	76
1454G	inch	6	2.5	2
	mm	152	64	51
1454H	inch	5	7.5	2.5
	mm	127	191	64
1454J	inch	4	3	4
	mm	102	76	102
1454K	inch	8	3.5	2.5
	mm	203	89	64
1454L	inch	5	6	4
	mm	127	152	102
1454M	inch	4	3	6
	mm	102	76	152
1454P	inch	10	5	3.5
	mm	254	127	89
1454R	inch	5	5	7.5
	mm	127	127	191



Notes: - Models with "B" dimension less than 5" (127 mm) have only one hole per side, centered in "B".

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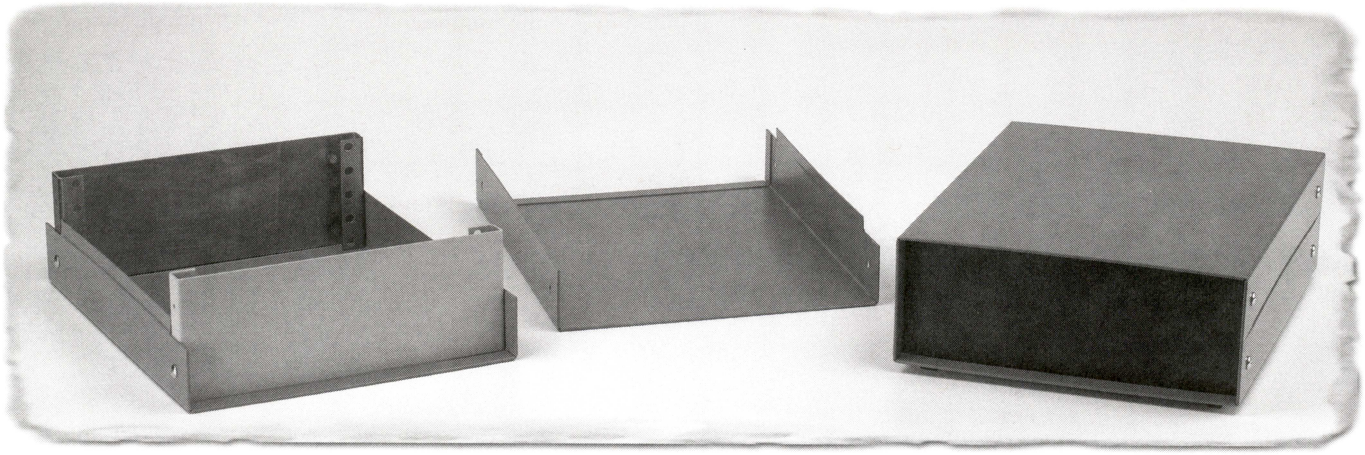
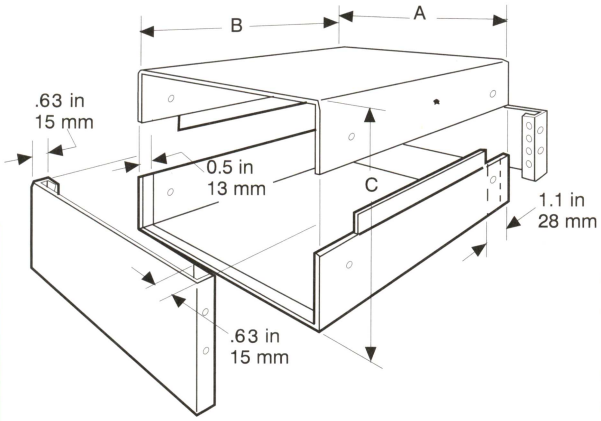
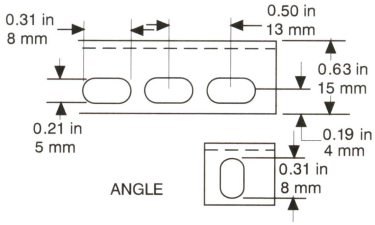
Instrument (1458 Series)







Mounting Rails

- Includes 1 rail, 2 "L" angle brackets, 4 clips and 4 screws per part.

Part Number	Units	Rail length
1448R6	inch mm	5.6 142
1448R8	inch mm	7.6 193
1448R10	inch mm	9.6 244
1448R12	inch mm	11.6 295
1448R14	inch mm	13.6 345
1448A20		Package of 20 angles, clips, & screws

KEY FEATURES

- 20 gauge steel case with black or gulf blue satin finish.
- Easy to machine 0.064" thick aluminum panels front and rear panels (one satin black and one contempra grey for each case).
- Symmetrical design so either end panel can be front.
- 6-32 Philips nickel plated screws and self-adhesive rubber feet included.
- Replacement screws **1421J6** (Pkg. of 6, 6-32 philips head screws).

Part Number		Units	Dimensions		
Satin Black	Satin Blue		A	B	C
1458A3	1458A3B	inch mm	4 101	4 101	3 76.2
1458B4	1458B4B	inch mm	6 152	4 101	4 101
1458C3	1458C3B	inch mm	6 152	6 152	3 76.2
1458C4	1458C4B	inch mm	6 152	6 152	4 101
1458D3	1458D3B	inch mm	8 203	8 203	3 76.2
1458D4	1458D4B	inch mm	8 203	8 203	4 101
1458D5	1458D5B	inch mm	8 203	8 203	5 127
1458E3	1458E3B	inch mm	8 203	10 254	3 76.2
1458E4	1458E4B	inch mm	8 203	10 254	4 101
1458E5	1458E5B	inch mm	8 203	10 254	5 127
1458G3	1458G3B	inch mm	10 254	8 203	3 76.2
1458G4	1458G4B	inch mm	10 254	8 203	4 101
1458G5	1458G5B	inch mm	10 254	8 203	5 127

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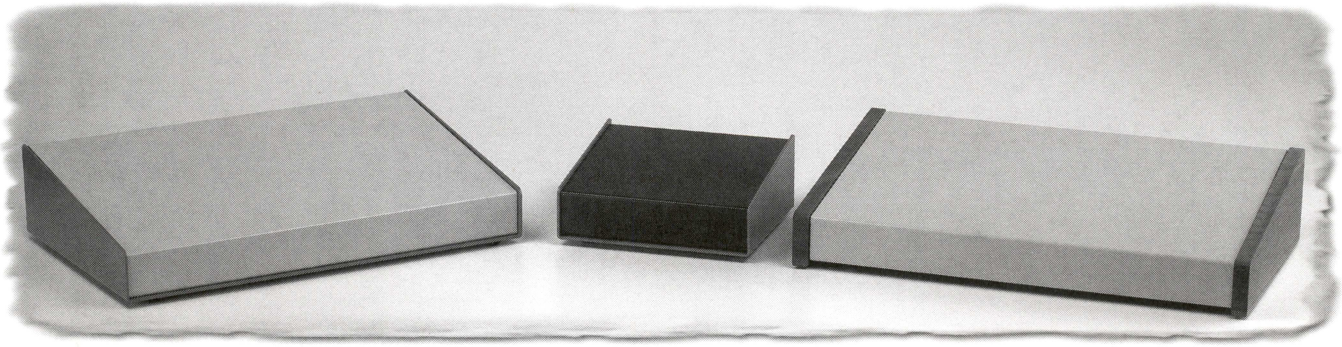
10º Sloped Instrument Consoles (1456 Series)



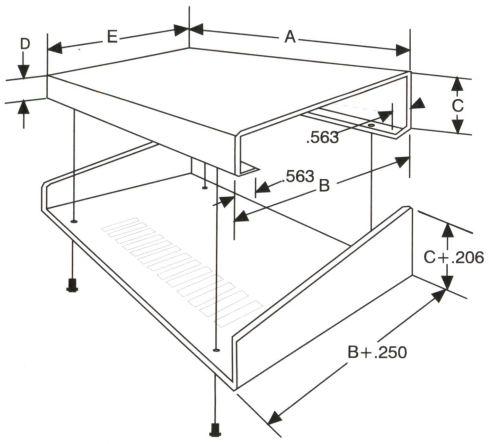
KEY FEATURES
(Aluminum Top and Case)

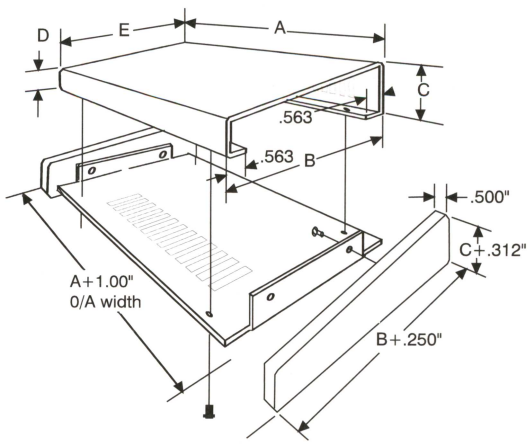
- Aluminum cases 0.081" (2 mm) thick aluminum.
- Aluminum top panel sizes to 14" wide are 0.064" thick aluminum. Larger sizes are 0.081" thick.
- Sold pre-assembled with a textured blue case and a choice of an contempra grey ***or*** a black top panel.
- Comes with self adhesive rubber feet and required mounting hardware.
- Replacement screws **1421J6** (Pkg. of 6, 6-32 philips head screws).

KEY FEATURES
(Aluminum Top and Walnut Case)

- Solid oiled walnut sides on a black, ventilated steel base with contempra grey aluminum top panel.
- Aluminum top panel sizes to 14" wide are 0.064" thick aluminum. Larger sizes are 0.081" thick.
- Comes with self adhesive rubber feet and required mounting hardware.
- Replacement screws **1421J6** (Pkg. of 6, 6-32 philips head screws).

Part Number			Units	Dimensions					
Off White Top and Blue Case	Black Top and Blue Case	Off White Top and Walnut Case		A	B	C	D	E	F
1456FE1WHBU	1456FE1BKBU		inch	6.5	5.5	2.5	1.5	5.6	n/a
			mm	165	140	64	38	142	n/a
1456PH1WHBU	1456PH1BKBU	1456PH1WHCWW	inch	14	8.3	3	1.5	8.5	n/a
			mm	356	211	76	38	216	n/a
1456RL1WHBU	1456RL1BKBU		inch	17	11.3	3.5	1.5	11.5	n/a
			mm	432	287	89	38	292	n/a
1456WL1WHBU	1456WL1BKBU		inch	20	11.3	3.5	1.5	11.5	n/a
			mm	508	287	89	38	292	n/a





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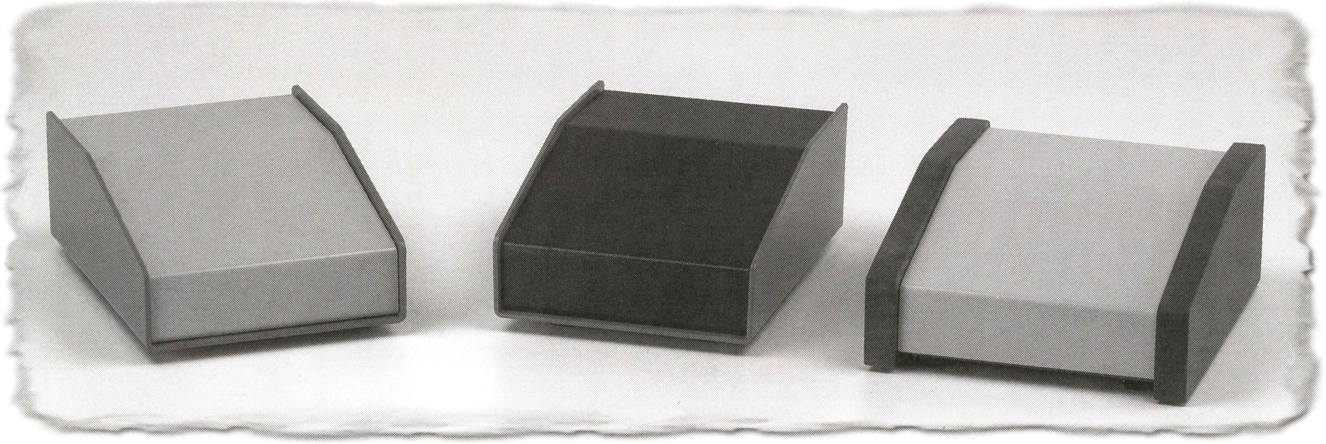
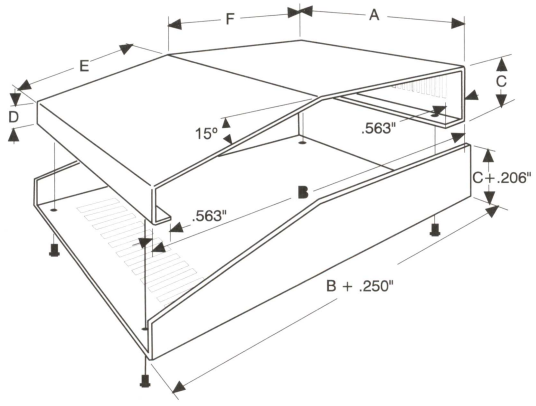
15° Sloped Instrument Consoles (1456 Series)

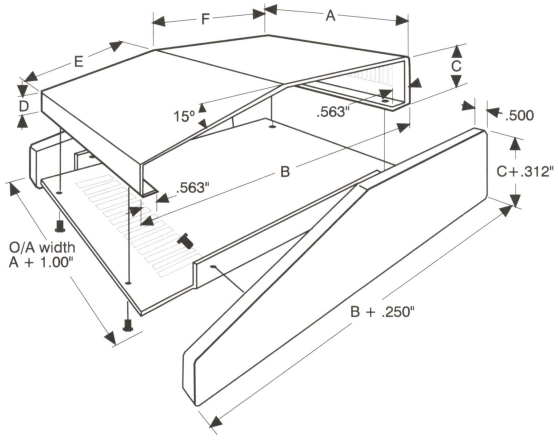


KEY FEATURES
Aluminum Top and Case
Same as 10 ° series (see page 59)

KEY FEATURES
Aluminum Top and Walnut Case
Same as 10 ° series (see page 59)

Part Number			Units	Dimensions					
Off White Top and Blue Case	Black Top and Blue Case	Off White Top and Walnut Case		A	B	C	D	E	F
1456CE2WHBU	1456CE2BKBU	1456CE2WHCWW	inch	4	5.5	2	1.1	3.3	2.2
			mm	102	140	51	28	84	56
1456FE2WHBU	1456FE2BKBU		inch	6.5	5.5	2	1.1	3.3	2.2
			mm	165	140	51	28	84	56
1456FH2WHBU	1456FH2BKBU	1456FH2WHCWW	inch	6.5	8.5	2	1.1	3.3	5.2
			mm	165	216	51	28	84	132
1456FH3WHBU	1456FH3BKBU		inch	6.5	8.3	3	1.3	6.3	2.2
			mm	165	211	76	33	160	56
1456KH3WHBU	1456KH3BKBU	1456KH3WHCWW	inch	10	8.3	3	1.3	6.3	2.2
			mm	254	211	76	33	160	56
1456PH3WHBU	1456PH3BKBU	1456PH3WHCWW	inch	14	8.3	3	1.3	6.3	2.2
			mm	356	211	76	33	160	56
1456RH3WHBU	1456RH3BKBU		inch	17	8.3	3	1.3	6.3	2.2
			mm	432	211	76	33	160	56
1456WH3WHBU	1456WH3BKBU		inch	20	8.3	3	1.3	6.3	2.2
			mm	508	211	76	33	160	56
1456KL3WHBU	1456KL3BKBU		inch	10	11.3	3	1.3	6.3	5.2
			mm	254	287	76	33	160	132
1456PL3WHBU	1456PL3BKBU	1456PL3WHCWW	inch	14	11.3	3	1.3	6.3	5.2
			mm	356	287	76	33	160	132
1456RL3WHBU	1456RL3BKBU		inch	17	11.3	3	1.3	6.3	5.2
			mm	432	287	76	33	160	132
1456WL3WHBU	1456WL3BKBU		inch	20	11.3	3	1.3	6.3	5.2
			mm	508	287	76	33	160	132





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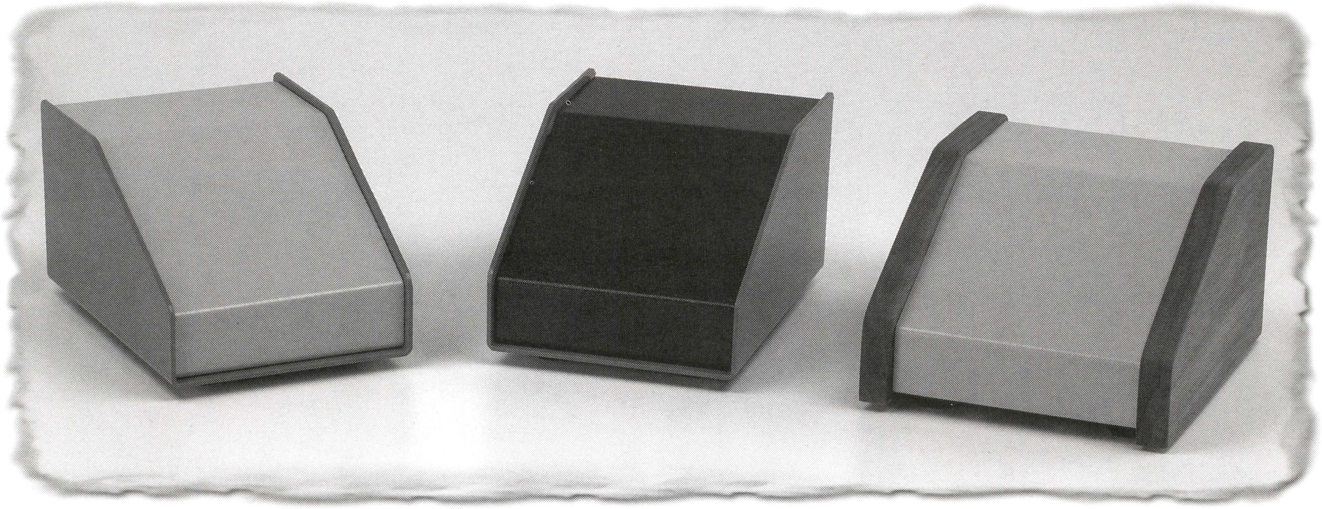
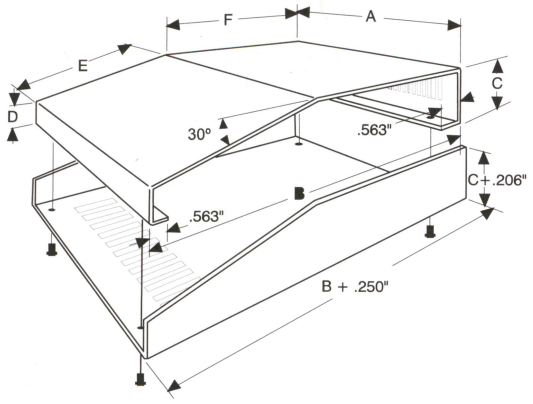
30º Sloped Instrument Consoles (1456 Series)

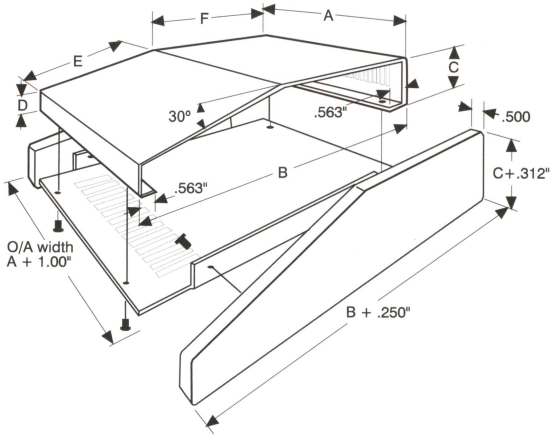


KEY FEATURES
Aluminum Top and Case
Same as 10 º series (see page 59)

KEY FEATURES
Aluminum Top and Walnut Case
Same as 10 º series (see page 59)

Part Number			Units	Dimensions					
Off White Top and Blue Case	Black Top and Blue Case	Off White Top and Walnut Case		A	B	C	D	E	F
1456CE3WHBU	1456CE3BKBU	1456CE3WHCWW	inch	4	5.5	3	1.1	3.7	2.2
			mm	102	140	76	28	94	56
1456FE3WHBU	1456FE3BKBU		inch	6.5	5.5	3	1.1	3.7	2.2
			mm	165	140	76	28	94	56
1456KE3WHBU	1456KE3BKBU		inch	10	5.5	3	1.1	3.7	2.2
			mm	254	140	76	28	94	56
1456FG4WHBU	1456FG4BKBU		inch	6.5	7.2	4	1.1	5.7	2.2
			mm	165	183	102	28	145	56
1456KG4WHBU	1456KG4BKBU		inch	10	7.2	4	1.1	5.7	2.2
			mm	254	183	102	28	145	56
1456PG4WHBU	1456PG4BKBU		inch	14	7.2	4	1.1	5.7	2.2
			mm	356	183	102	28	145	56
1456KK4WHBU	1456KK4BKBU	1456KK4WHCWW	inch	10	10.2	4	1.1	5.7	5.2
			mm	254	259	102	28	145	132
1456PK4WHBU	1456PK4BKBU	1456PK4WHCWW	inch	14	10.2	4	1.1	5.7	5.2
			mm	356	259	102	28	145	132
1456RK4WHBU	1456RK4BKBU		inch	17	10.2	4	1.1	5.7	5.2
			mm	432	259	102	28	145	132
1456WK4WHBU	1456WK4BKBU		inch	20	10.2	4	1.1	5.7	5.2
			mm	508	259	102	28	145	132





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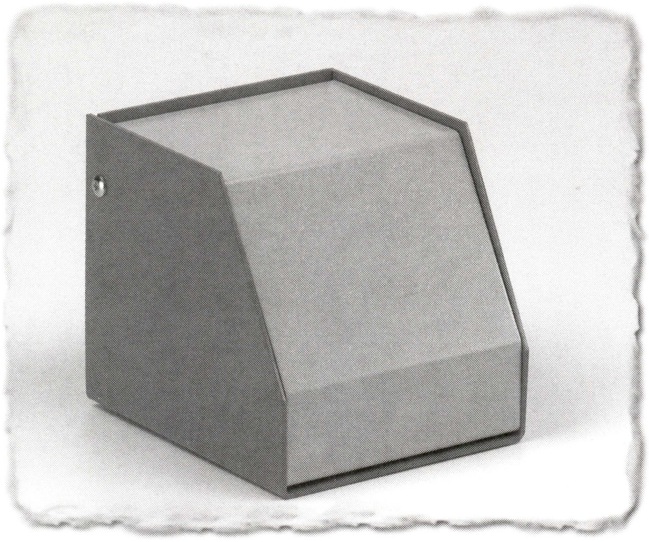
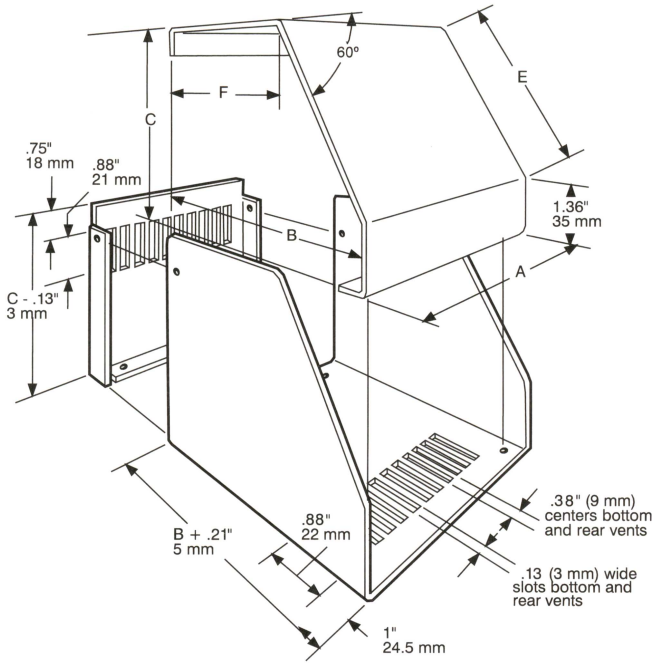
Sloped Instrument Consoles (SCEM Series)





General Purpose Metal

KEY FEATURES

- Convection ventilation is provided by slots in the bottom and removable rear panels.
- Aluminum case is finished in satin blue with a contempra grey panel.
- Supplied with hardware and rubber feet.
- Replacement screws **1421J6** (Pkg. of 6, 6-32 philips head screws).

Part Number	Units	Dimensions				
		A	B	C	E	F
SCEM101110WH	inch	4	4.5	4	3	2.9
	mm	102	114	102	76	74
SCEM161110WH	inch	6.5	4.5	4	3	2.9
	mm	165	114	102	76	74
SCEM161414WH	inch	6.5	5.5	5.5	4.7	3.1
	mm	165	140	140	119	79
SCEM251414WH	inch	10	5.5	5.5	4.7	3.1
	mm	254	140	140	119	79
SCEM251619WH	inch	10	6.5	7.5	7	2.9
	mm	254	165	191	179	74
SCEM351619WH	inch	14	6.5	7.5	7	2.9
	mm	356	165	191	179	74

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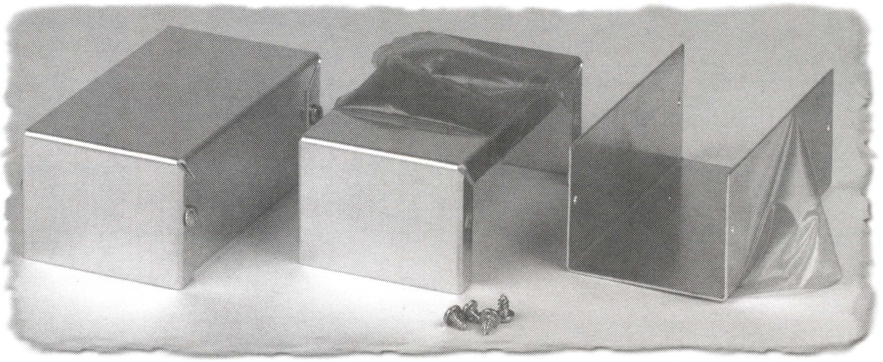
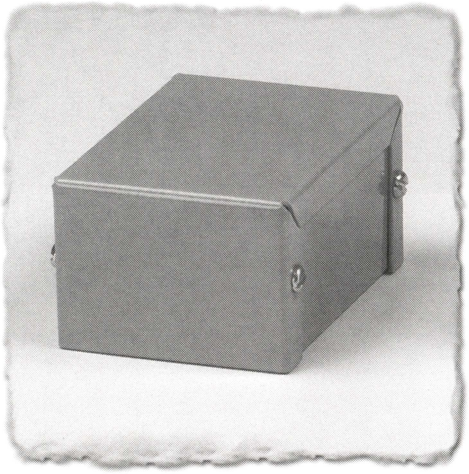
Aluminum Utility (1411 Series)

Natural aluminum with a smooth brushed finish and protective film...

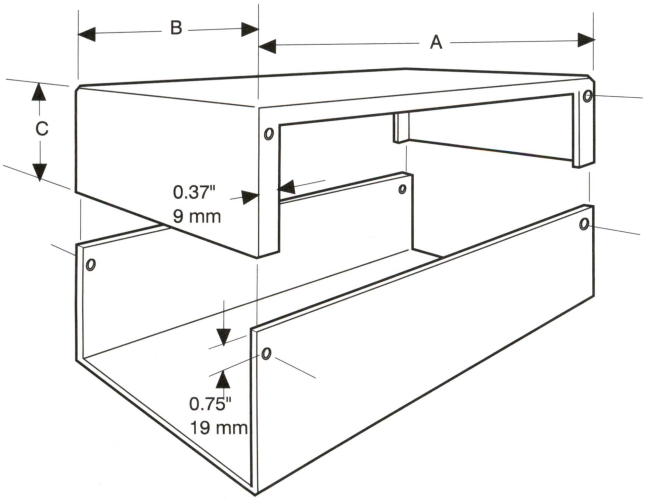




Painted aluminum version...

KEY FEATURES

- .040" thick aluminum.
- Four self-tapping screws included.
- Unpainted or ASA 61 grey baked enamel finish (outside only).
- Unpainted version is protected through manufacturing and shipping with a plastic skin cover to ensure a high quality finish.
- Replacement screws **1421J6** (Pkg. of 6, 6-32 philips head screws).



Part Number		Units	Dimensions		
Grey	Unpainted		A	B	C
1411B	1411BU	inch	2.7	2.2	1.6
		mm	69	56	41
1411C	1411CU	inch	3.2	2.2	1.1
		mm	81	56	28
1411D	1411DU	inch	3.2	2.2	1.6
		mm	81	56	41
1411F	1411FU	inch	4.0	2.2	3.0
		mm	102	56	76
1411G	1411GU	inch	4.0	2.2	1.6
		mm	102	56	41
1411H	1411HU	inch	4.0	2.2	2.2
		mm	102	56	56
1411K	1411KU	inch	5.0	2.2	2.2
		mm	127	56	56
1411L	1411LU	inch	5.0	4.0	3.0
		mm	127	102	76
1411M	1411MU	inch	6.0	3.0	3.0
		mm	152	76	76
1411N	1411NU	inch	5.0	3.0	2.2
		mm	127	76	56
1411P	1411PU	inch	6.0	5.0	4.0
		mm	152	127	102
1411Q	1411QU	inch	7.0	5.0	3.0
		mm	178	127	76
1411R	1411RU	inch	8.0	6.0	3.5
		mm	203	152	89
1411S	1411SU	inch	8.0	4.0	3.0
		mm	203	102	76
1411T	1411TU	inch	10.0	2.2	1.6
		mm	254	56	76
1411U	1411UU	inch	10.0	6.0	3.5
		mm	254	152	89
1411W	1411WU	inch	12.0	3.0	2.2
		mm	305	76	56
1411X	1411XU	inch	12.0	7.0	4.0
		mm	305	178	102
1411Z	1411ZU	inch	17.0	5.0	4.0
		mm	432	127	102

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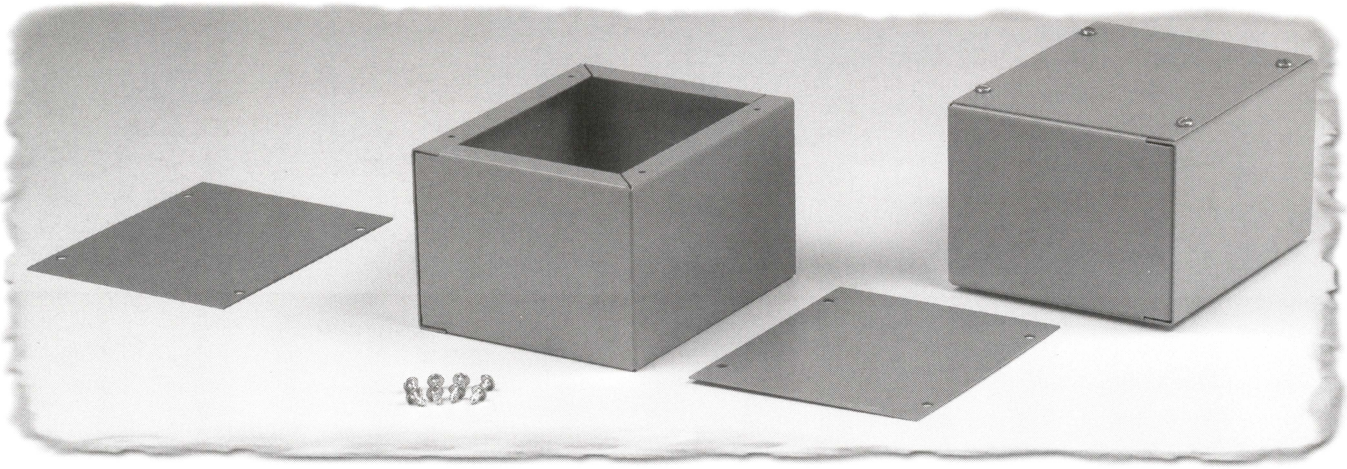
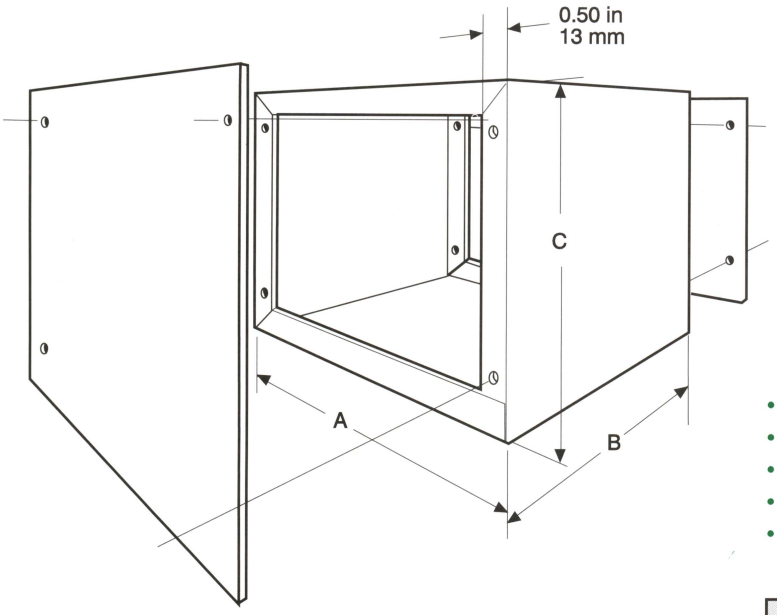
Steel Utility (1415 Series)





KEY FEATURES

- Sizes A to E are 20 gauge 0.036" thick steel.
- Sizes F to J are 18 gauge 0.048" thick steel.
- Self-tapping screws included.
- ASA 61 grey baked enamel finish.
- Replacement screws **1421J6** (Pkg. of 6, 6-32 philips head screws).

Part Number	Units	Dimensions		
		A	B	C
1415A	inch	4	2	4
	mm	102	51	102
1415B	inch	4	3	5
	mm	102	76	127
1415C	inch	6	4	5
	mm	152	102	127
1415D	inch	6	6	6
	mm	152	152	152
1415E	inch	9	5	6
	mm	229	127	152
1415F	inch	10	7	8
	mm	254	178	203
1415G	inch	12	6	7
	mm	305	152	178
1415H	inch	10	8	10
	mm	254	203	254
1415I	inch	12	8	11
	mm	305	203	279
1415J	inch	15	7	9
	mm	383	179	230

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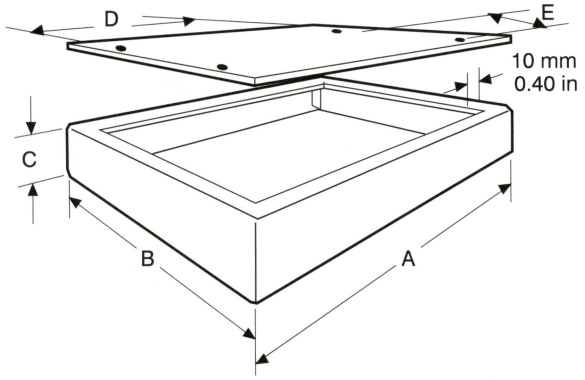
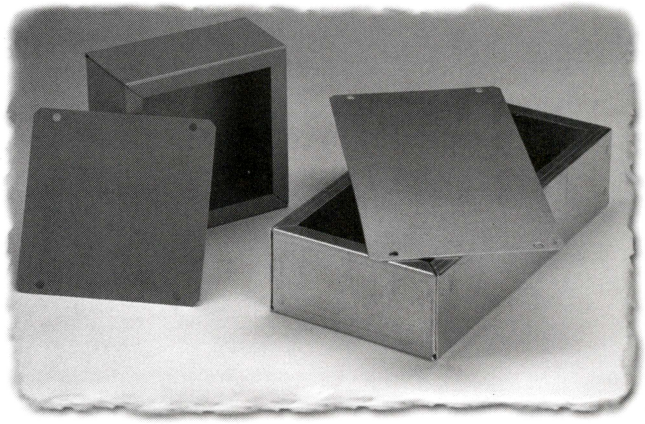
Steel Chassis (1441 & 1431 Series)





Part Number		Gauge	Units	Dimensions				
Steel Chassis	Cover			A	B	C	D	E
1441-6	1431-6	20	inch	4	4	2	3.6	3
			mm	102	102	51	92	76
1441-8	1431-8	20	inch	6	4	2	5.6	3
			mm	152	102	51	143	76
1441-9	1431-10	20	inch	8	4	1	7.6	3
			mm	203	102	25	194	76
1441-10	1431-10	20	inch	8	4	2	7.6	3
			mm	203	102	51	194	76
1441-12	1431-12	20	inch	7	5	2	6.6	3
			mm	178	127	51	168	76
1441-14	1431-14	20	inch	9	5	2	8.6	3
			mm	229	127	51	219	76
1441-15	1431-16	20	inch	10	6	1	9.6	4
			mm	254	152	25	244	102
1441-16	1431-16	20	inch	10	6	2	9.6	4
			mm	254	152	51	244	102
1441-18	1431-18	20	inch	13.5	5	2	13.1	3
			mm	343	127	51	333	76
1441-20	1431-20	20	inch	17	4	3	16.6	3
			mm	432	102	76	422	76
1441-22	1431-22	20	inch	12	8	2	11.6	6
			mm	305	203	51	295	152
1441-24	1431-22	20	inch	12	8	3	11.6	6
			mm	305	203	76	295	152
1441-26	1431-26	20	inch	16	8	2	15.6	6
			mm	406	203	51	397	152
1441-28	1431-26	20	inch	16	8	3	15.6	6
			mm	406	203	76	397	152
1441-29	1431-29	20	inch	12	10	2	11.6	8
			mm	305	254	51	295	203
1441-30	1431-30	20	inch	17	10	2	16.6	8
			mm	432	254	51	422	203
1441-32	1431-30	20	inch	17	10	3	16.6	8
			mm	432	254	87	422	203
1441-33	1431-30	20	inch	17	10	4	16.6	8
			mm	432	254	102	422	203
1441-34	1431-34	18	inch	17	12	2	16.6	10
			mm	432	305	51	422	254
1441-36	1431-34	18	inch	17	12	3	16.6	10
			mm	432	305	76	422	254
1441-38	1431-38	18	inch	17	14	3	16.6	12
			mm	432	356	76	422	305
1441-40	1431-38	18	inch	17	14	4	16.6	12
			mm	432	356	102	422	305
1441-42	1431-38	18	inch	17	14	5	16.6	12
			mm	432	356	127	422	305

KEY FEATURES

- Spot welded heavy duty construction chassis.
- Painted ASA 61 grey baked enamel finish (as shown above - left group)
- Cover holes are punched with 4 holes – 3/16" diameter. Hardware not provided, please order separately - Part number **1421J6** (Pkg. of 6, 6-32 philips head screws).

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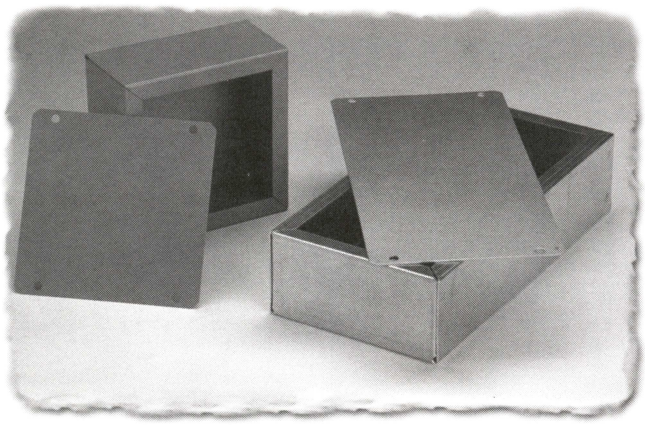
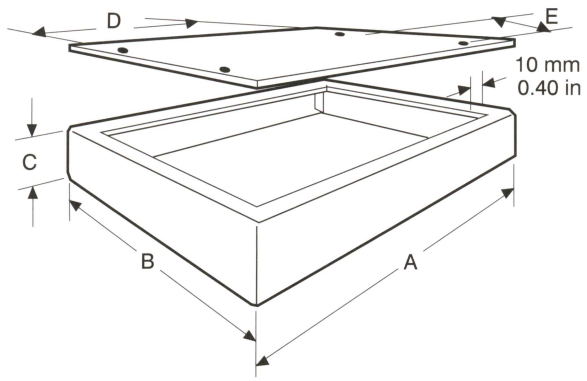
Aluminum Chassis (1444 & 1434 Series)





KEY FEATURES

- Spot welded heavy duty construction chassis.
- Natural finish (as shown above - right group)
- Cover holes are punched with 4 holes – 3/16" diameter. Hardware not provided, please order separately - Part number **1421J6** (Pkg. of 6, 6-32 philips head screws).

Part Number		In. Thick	Units	Dimensions				
Aluminum Chassis	Cover			A	B	C	D	E
1444-6	1434-6	.040	inch	4	4	2	3.6	3
			mm	102	102	51	92	76
1444-8	1434-8	.040	inch	6	4	2	5.6	3
			mm	152	102	51	143	76
1444-9	1434-10	.040	inch	8	4	1	7.6	3
			mm	203	102	25	194	76
1444-10	1434-10	.040	inch	8	4	2	7.6	3
			mm	203	102	51	194	76
1444-12	1434-12	.040	inch	7	5	2	6.6	3
			mm	178	127	51	168	76
1444-14	1434-14	.040	inch	9	5	2	8.6	3
			mm	229	127	51	219	76
1444-15	1434-16	.040	inch	10	6	1	9.6	4
			mm	254	152	25	244	102
1444-16	1434-16	.040	inch	10	6	2	9.6	4
			mm	254	152	51	244	102
1444-18	1434-18	.040	inch	13.5	5	2	13.1	3
			mm	343	127	51	333	76
1444-20	1434-20	.040	inch	17	4	3	16.6	3
			mm	432	102	76	422	76
1444-22	1434-22	.051	inch	12	8	2	11.6	6
			mm	305	203	51	295	152
1444-24	1434-22	.051	inch	12	8	3	11.6	6
			mm	305	203	76	295	152
1444-26	1434-26	.051	inch	16	8	2	15.6	6
			mm	406	203	51	397	152
1444-28	1434-26	.051	inch	16	8	3	15.6	6
			mm	406	203	76	397	152
1444-29	1434-29	.051	inch	12	10	2	11.6	8
			mm	305	254	51	295	203
1444-30	1434-30	.051	inch	17	10	2	16.6	8
			mm	432	254	51	422	203
1444-32	1434-30	.051	inch	17	10	3	16.6	8
			mm	432	254	87	422	203
1444-33	1434-30	.051	inch	17	10	4	16.6	8
			mm	432	254	102	422	203

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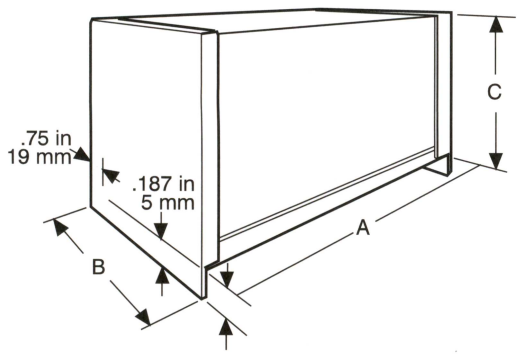
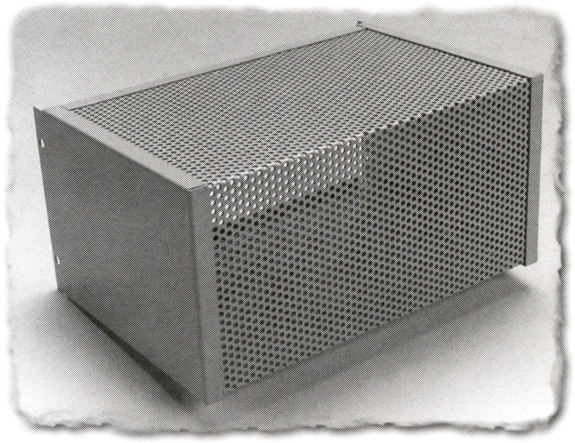
Steel Chassis Cover (1451 Series)





Part Number	Units	Dimensions			Use with Chassis
		A	B	C	
1451-10	inch	8	4	5.2	4 x 8
	mm	203	102	132	
1451-14	inch	9	5	5.2	5 x 9
	mm	228	127	132	
1451-16	inch	10	6	5.2	6 x 10
	mm	254	152	132	
1451-22	inch	12	8	5.2	8 x 12
	mm	305	203	132	
1451-26	inch	16	8	5.2	8 x 16
	mm	406	203	132	
1451-30	inch	17	10	5.2	10 x 17
	mm	432	254	132	

KEY FEATURES

- For use with the 1441 and 1444 series chassis.
- 20 gauge steel ends welded to a perforated steel wrapper.
- ASA 61 grey baked enamel finish.
- 4 self-tapping screws included.
- Replacement screws **1421J6** (Pkg. of 6, 6-32 philips head screws).

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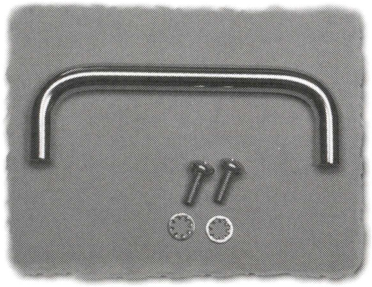
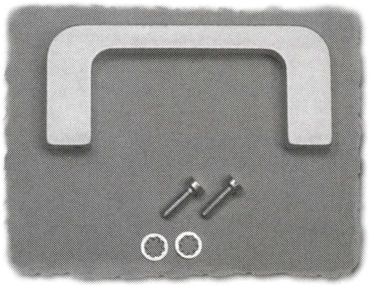
Accessories



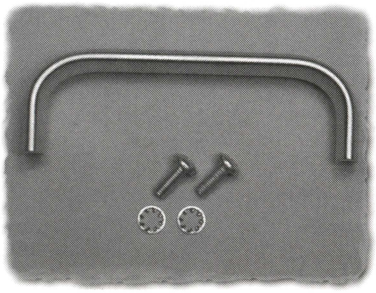
1427C1

- 4" (102mm) hole to hole mounting centers
- 4.4" (111mm) length
- 1.3" (33mm) height
- 3/8" (9.5mm) diameter round bright nickel finished brass
- 10-32 hardware included
- thread depth is 9/16" (14.3mm)



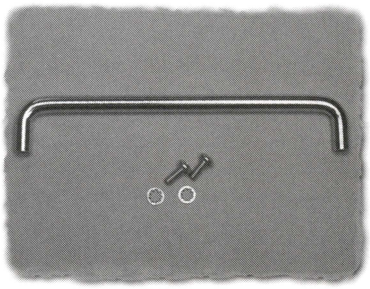
1427C6

- 2.7" (70mm) hole to hole mounting centers
- 3.5" (89mm) length
- 1.5" (38mm) height
- clear anodized satin finish aluminum
- 8-32 hardware included
- thread depth is 7/16" (11.11mm)



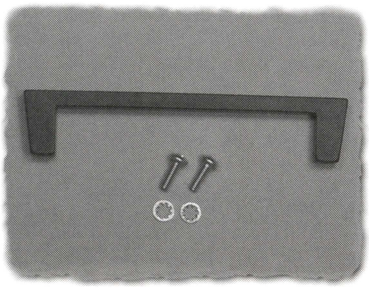
1427C2

- 4" (102mm) hole to hole mounting centers
- 4.4" (111mm) length
- 1.3" (33mm) height
- 5/8" x 9/32" (15.9 x 7.14mm) oval, satin nickel finished brass
- 10-32 hardware included
- thread depth is 1/2" (12.7mm)



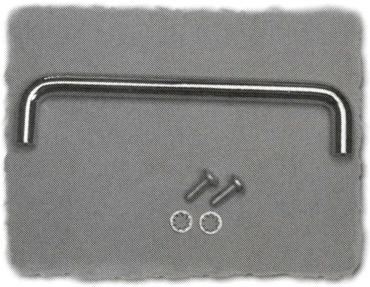
1427L

- 7" (178mm) hole to hole mounting centers
- 7.4" (187mm) length
- 1.2" (30mm) height
- chrome plated steel
- 10-32 hardware included
- .375" (10mm) diameter



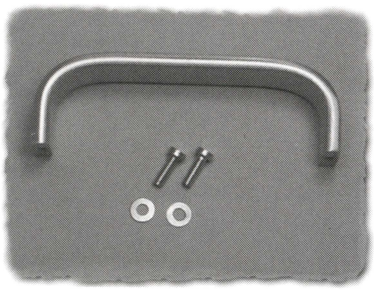
1427C4

- 4.4" (111mm) hole to hole mounting centers
- 5" (127mm) length
- 1" (25mm) height
- black anodized satin finish aluminum
- 8-32 hardware included
- thread depth is 3/8" (9.5mm)



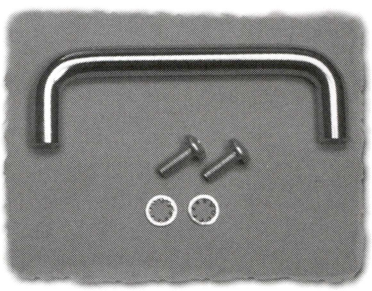
1427M

- 5.3" (133mm) hole to hole mounting centers
- 5.6" (141mm) length
- 1.2" (30mm) height
- chrome plated steel
- 10-32 hardware included
- .375" (10mm) diameter



1427C5

- 4" (102mm) hole to hole mounting centers
- 4.2" (108mm) length
- 1.3" (34mm) height
- 1/4" x 7/8" (6.35 x 22.2mm) rectangular, clear anodized brushed finish aluminum
- 8-32 hardware included
- thread depth is 7/16" (11.11mm)



1427N

- 3.5" (89mm) hole to hole mounting centers
- 3.9" (99mm) length
- 1.2" (30mm) height
- chrome plated steel
- 10-32 hardware included
- .375" (10mm) diameter

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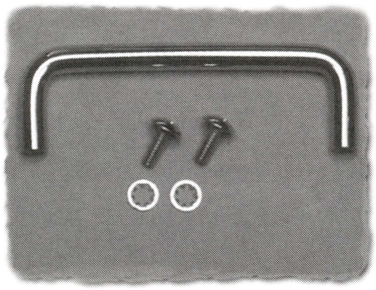
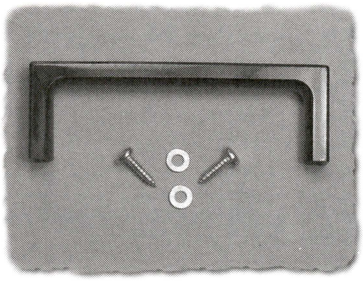
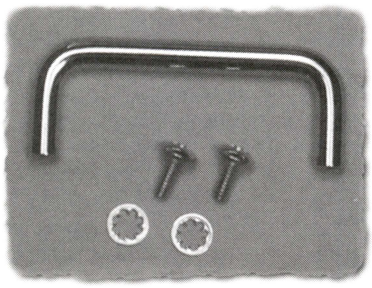
Handles



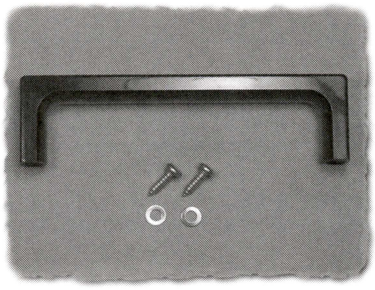
1427P
- 2.8" (71mm) hole to hole mounting centers
- 3" (76mm) length
- .95" (24mm) height
- chrome plated steel
- 6-32 hardware included
- .25" (6mm) diameter



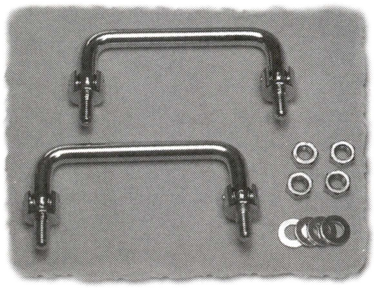
M250-1003
- 4" (102mm) hole to hole mounting centers
- 4.4" (111mm) length
- 1.4" (36mm) height
- black nylon carry handle
- 55 lb. load capacity
- hardware included
- .52" (13mm) diameter



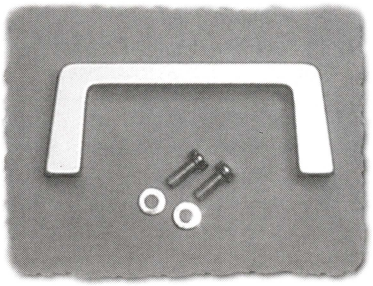
1427Q
- 2.3" (58mm) hole to hole mounting centers
- 2.5" (64mm) length
- .95" (24mm) height
- chrome plated steel
- 6-32 hardware included
- .25" (6mm) diameter



M250-1393
- 5.6" (141mm) hole to hole mounting centers
- 6.1" (154mm) length
- 1.7" (42mm) height
- black nylon carry handle
- 132 lb. load capacity
- hardware included
- .79" (20mm) diameter

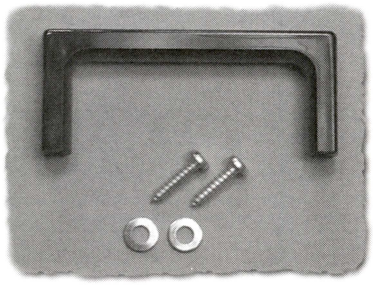


M286-6
- 3.9" (99mm) hole to hole mounting centers
- 4.6" (118mm) length
- 1.7" (42mm) height
- spring-locked, chrome plated steel folding handle
- carry capacity of 220 lbs. (100kg) per pair
- hardware included
- sold in pairs

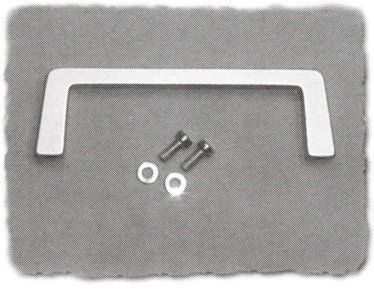


M268-2
- 3.5" (88mm) hole to hole mounting centers
- 4" (102mm) length
- 1.6" (40mm) height
- matte anodized aluminum handle
- hardware included
- .48" (12mm) diameter

Accessories



M250-663
- 2.7" (67mm) hole to hole mounting centers
- 3" (75mm) length
- 1.3" (32mm) height
- black nylon carry handles
- hardware included



M268-3
- 4.8" (121mm) hole to hole mounting centers
- 5.3" (134mm) length
- 1.6" (40mm) height
- matte anodized aluminum handle
- hardware included
- .48" (12mm) diameter

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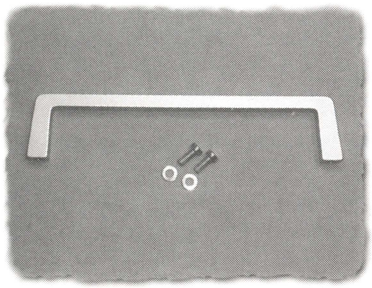
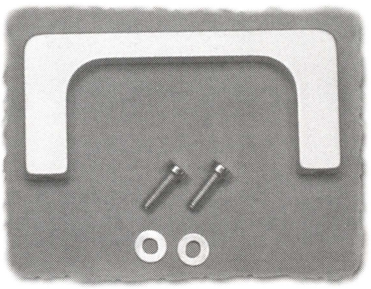
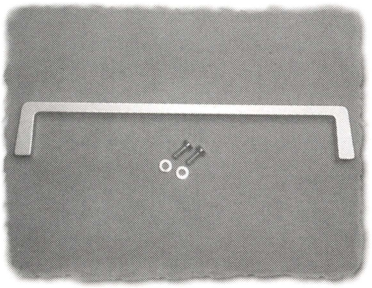


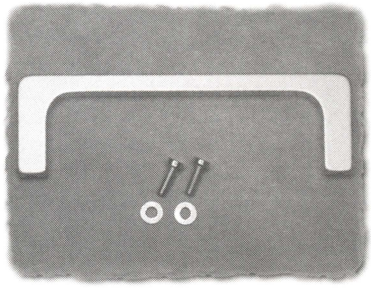
M268-4
- 7.1" (181mm) hole to hole mounting centers
- 7.6" (194mm) length
- 1.6" (40mm) height
- matte anodized aluminum handle
- hardware included
- .48" (12mm) diameter



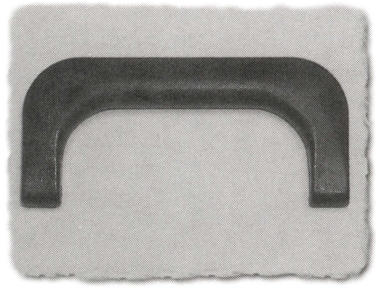
M3299-1231
- 3" (75mm) hole to hole mounting centers
- 3.4" (87mm) length
- 1.6" (40mm) height
- matte anodized aluminum handle
- hardware included
- .30" (8mm) diameter



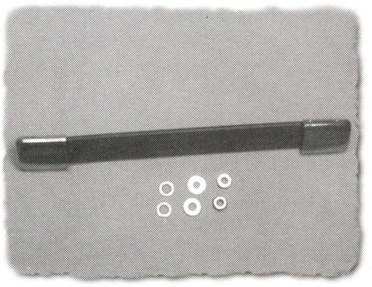
M268-5
- 9.3" (237mm) hole to hole mounting centers
- 9.8" (249mm) length
- 1.6" (40mm) height
- matte anodized aluminum handle
- hardware included
- .48" (12mm) diameter



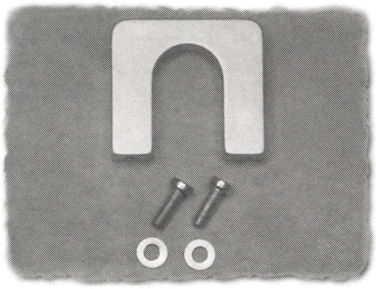
M3299-1301
- 4.7" (119mm) hole to hole mounting centers
- 5.2" (131mm) length
- 1.6" (40mm) height
- matte anodized aluminum handle
- hardware included
- .30" (8mm) diameter



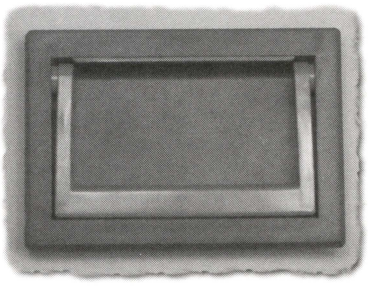
1427F
- 3.7" (94mm) hole to hole mounting centers
- 4.9" (124mm) length
- 2.2" (56mm) height
- black, scratch resistant, light weight polystyrene handle
- 60 lb. load capacity
- nickel plated steel support posts
- hardware included
- .43" (11mm) diameter



1427J
- 8.5" (216mm) long
- .77" (20mm) width
- .19" (5mm) height
- 7.25" (184mm) mounting centers
- chrome caps on a fluted soft vinyl strap with a spring steel core
- 50 lb. load capacity
- hardware included

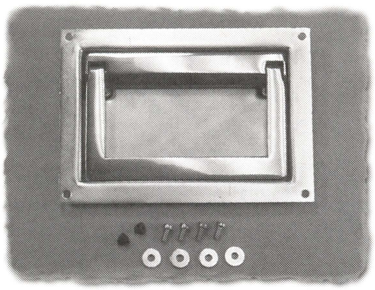


M3299-1131
- 1.3" (32mm) hole to hole mounting centers
- 1.7" (42mm) length
- 1.6" (40mm) height
- matte anodized aluminum handle
- hardware included
- .30" (8mm) diameter



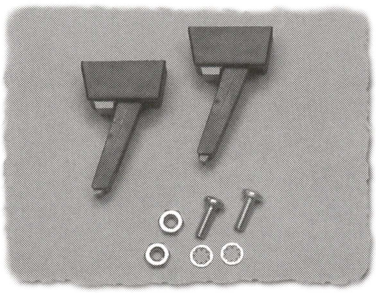
1427K
- 5" (128mm) length
- 3.5" (90mm) height
- .68" (17mm) depth
- black plastic tray with grey plastic folding handle
- handle is 4.1" (104mm) wide and 2.5" (63mm) high
- steady load capacity of 75 lbs. per handle
- simple installation: secured by 2 clips (included)

Handles, Feet & Cable Wraps



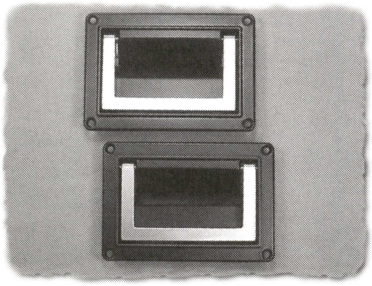
M262-01

- 5.9" (150mm) length
- 4.1" (105mm) height
- .65" (17mm) depth
- galvanized steel, flush mount screw down tray
- polished aluminum handle
- handle is 4.7" (120mm) wide and 3" (77mm) high
- steady load capacity of 330 lbs. per pair
- hardware included
- sold in pairs



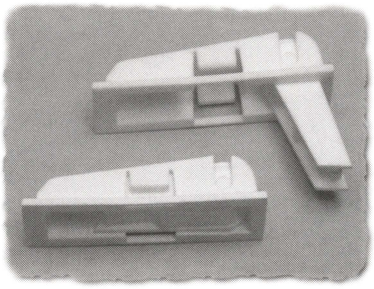
M3784-7001

- 2.6" (67mm) length (in closed position)
- 1.8 (46mm) height (in open position)
- black polyamide spring locked folding legs
- hardware included
- sold in pairs



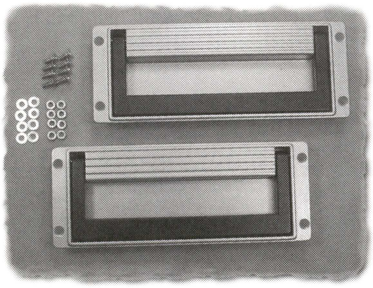
M263-1

- 5.1" (130mm) length
- 3.6" (91mm) height
- .79" (20mm) depth
- black steel tray
- folding, spring loaded polished steel handle
- handle is 4" (102mm) wide and 2.3" (59mm) high
- steady load capacity of 275 lbs. per pair
- hardware not included
- sold in pairs



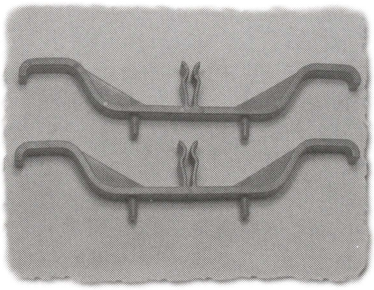
1427X

- 2.5" (63mm) length (in closed position)
- 1.35" (34mm) height (in open position)
- white ABS plastic folding legs
- sold in pairs



M3255-2001

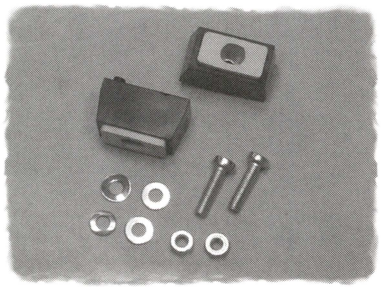
- 7.6" (194mm) length
- 3" (76mm) height
- .83" (21mm) depth
- silver steel tray
- folding black matte handle
- handle is 6.4" (164mm) wide and 2.3" (59mm) high
- carry capacity of 220 lbs. per pair
- hardware not included
- sold in pairs



M795

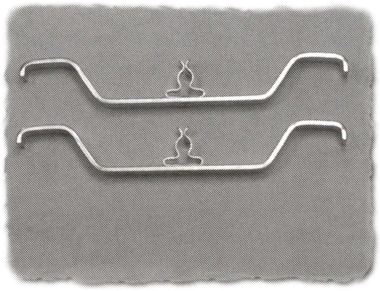
- 4.8" (122mm) overall length
- grey plastic cord wrap
- simple installation: secured by two clips each (included)
- sold in pairs

Accessories



M797-24

- 1.1" (27mm) length
- .64" (16mm) height
- .55" (14mm) depth
- black polyamic fixed rear legs
- hardware included
- sold in pairs



M795-2

- 5" (126mm) overall length
- zinc plated cord wrap
- mounting hardware not included
- sold in pairs

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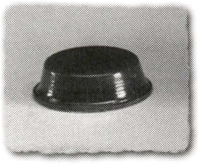
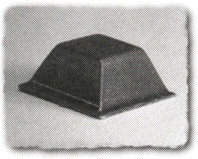
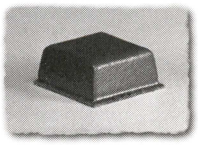
RUBBER FEET



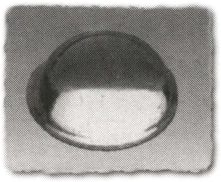
1421T2



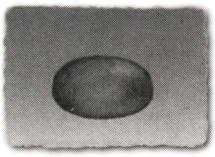
1421T3



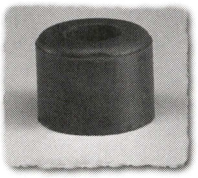
1421T4



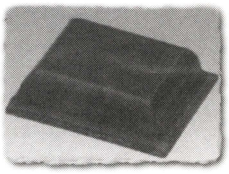
1421T5CL



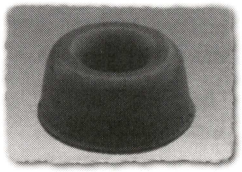
1421T6CL



1421T7



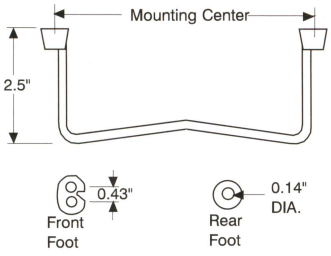
1421T8BK



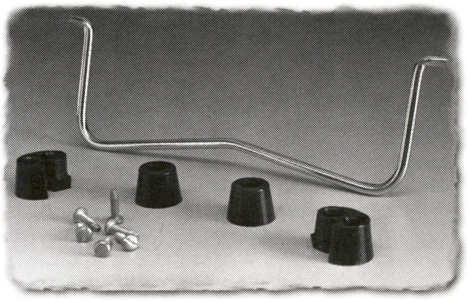
1421T9BK

Rubber Feet						
Part Number	Description	Color	Dimensions		Style	Pkg. Qty
1421T2	Self-adhesive	Black	.5" x .14"	12.7 x 3.5 mm	Flat Round	24
1421T2CL	Self-adhesive	Clear	.5" x .14"	12.7 x 3.5 mm	Flat Round	24
1421T2GY	Self-adhesive	Grey	.5" x .14"	12.7 x 3.5 mm	Flat Round	24
1421T3	Self-adhesive	Black	.5" x .23"	12.7 x 5.8 mm	Square	24
1421T4	Self-adhesive	Black	.81" x .30"	20.5 x 7.6 mm	Square	24
1421T5BK	Self-adhesive	Black	.44" x .20"	11.1 x 5 mm	Hemisphere	24
1421T5CL	Self-adhesive	Clear	.44" x .20"	11.1 x 5 mm	Hemisphere	24
1421T6CL	Self-adhesive	Clear	.31" x .09"	7.9 x 2.2 mm	Flat Round	24
1421T7	Screw-on	Black	.75" x .5"	19 x 12.7 mm	Round	24
1421T8BK	Self-adhesive	Black	.5" x .14"	12.7 x 3.1 mm	Square	24
1421T9BK	Self-adhesive	Black	.88" x .40"	22.35 x 10.16 mm	Round	24

BAILS



Bails - (Tilt Stand)		
	Mounting Centers	
Part Number	inches	mm
1427D5	5.5	139.7
1427D7	7.0	177.8
1427D10	10.0	254.0



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HARDWARE

Part Number	Qty. per pkg.	Hardware Accessories
BH1AAWKIT	1	Battery holder kit for 1 AA cell for 1599 B & E series
BH2AAWKIT	1	Battery holder kit for 2 AA cell for 1599 B & E series
BH1AAAWKIT	1	Battery holder kit for 1 AAA cell for 1599 B & E series
BH2AAAWKIT	1	Battery holder kit for 2 AAA cell for 1599 B & E series
BH3AAAWKIT	1	Battery holder kit for 3 AAA cell for 1599E series
BH4AAAWKIT	1	Battery holder kit for 4 AAA cell for 1599E series
BS61KIT	1	Battery holder kit for 1 - 9V cell for 1599 B & E series
1427KR	1	Key ring kit for 1551 series
1448A20	20	Angles, clips and screws for 1448 rails
1448R6	1	Mounting rails for 1401 & 1458 series
1448R8	1	Mounting rails for 1401 & 1458 series
1448R10	1	Mounting rails for 1401 & 1458 series
1448R12	1	Mounting rails for 1401 & 1458 series
1448R14	1	Mounting rails for 1401 & 1458 series
1591AC	1	Clear plastic lid for 1591A series
1591BC	1	Clear plastic lid for 1591B series
1591CC	1	Clear plastic lid for 1591C series
1591DC	1	Clear plastic lid for 1591D series
1591EC	1	Clear plastic lid for 1591E series
1591GC	1	Clear plastic lid for 1591G series
1591HC	1	Clear plastic lid for 1591H series
1591LC	1	Clear plastic lid for 1591L series
1591SC	1	Clear plastic lid for 1591S series
1591TC	1	Clear plastic lid for 1591T series
1591UC	1	Clear plastic lid for 1591U series
1591VC	1	Clear plastic lid for 1591V series
1591Z6	6	P.C. card adaptors for 1590 (L-R) & 1591 series
1591Z50	50	P.C. card adaptors for 1590 (L-R) & 1591 series
1591Z100	100	P.C. card adaptors for 1590 (L-R) & 1591 series
1592ETG	1	Gasket kit for 1592 "T" case
1592ETM	1	Magnetic 3" pad for rear of 1592 "T" case
1592ETRF	6	Rubber feet for 1592 "T" case
1592ETV	1	Velcro mounting pad for 1592 "T" case
1593PIR10	10	Infrared panels for 1593 series
1594AZ25	25 sets	P.C. card guides for 1594A series
1594AD5	5 sets	P.C. card guides for 1594A series
1594BZ25	25 sets	P.C. card guides for 1594B series
1594BD5	5 sets	P.C. card guides for 1594B series
1594CZ25	25 sets	P.C. card guides for 1594C series
1594CD5	5 sets	P.C. card guides for 1594C series
1594DZ25	25 sets	P.C. card guides for 1594D series
1594DD5	5 sets	P.C. card guides for 1594D series
1594EZ25	25 sets	P.C. card guides for 1594E series
1594ED5	5 sets	P.C. card guides for 1594E series

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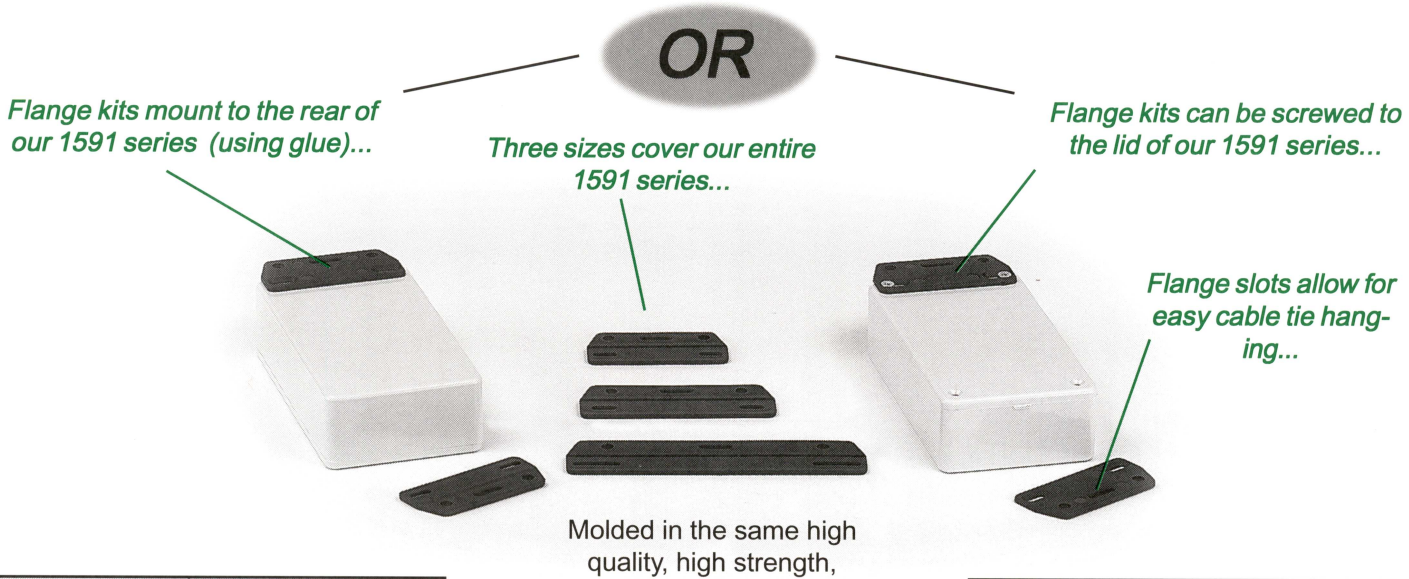
HARDWARE

Part Number	Qty. per pkg.	Hardware Accessories
1598PLABK	2	Black plastic end panels for 1598A series
1598PLAGY	2	Grey plastic end panels for 1598A series
1598PLBBK	2	Black plastic end panels for 1598B series
1598PLBGY	2	Grey plastic end panels for 1598B series
1598PLBBBK	2	Black plastic end panels for 1598BB series
1598PLBBGY	2	Grey plastic end panels for 1598BB series
1598PLCBK	2	Black plastic end panels for 1598C series
1598PLCGY	2	Grey plastic end panels for 1598C series
1598PLDBK	2	Black plastic end panels for 1598D series
1598PLDGY	2	Grey plastic end panels for 1598D series
1598PLEBK	2	Black plastic end panels for 1598E series
1598PLEGY	2	Grey plastic end panels for 1598E series
1598PLFBK	2	Black plastic end panels for 1598F series
1598PLFGY	2	Grey plastic end panels for 1598F series
1598PLGBK	2	Black plastic end panels for 1598G series
1598PLGGY	2	Grey plastic end panels for 1598G series
1598PLHBK	2	Black plastic end panels for 1598H series
1598PLHGY	2	Grey plastic end panels for 1598H series
1598PLJBK	2	Black plastic end panels for 1598J series
1598PLJGY	2	Grey plastic end panels for 1598J series
1599BD5	5	Plastic battery dividers for 1599B series
1599BD100	100	Plastic battery dividers for 1599B series
1599CLIP	1	Black nylon belt or pocket clip with hardware
1599CLIPGY	1	Grey nylon belt or pocket clip with hardware
1599ED5	5	Plastic battery dividers for 1599E series
1599ED100	100	Plastic battery dividers for 1599E series
1599HD5	5	Plastic battery dividers for 1599H series
1599HD100	100	Plastic battery dividers for 1599H series

SCREWS

Part Number	Qty per pkg.	Replacement & Accessory Screws	Screw Size
1421J6	6	Self tapping for most metal case series	6-32 philips, nickel plated
1551ATS100	100	Self tapping type for 1551 series	#2 x 3/16" nickel plated
1590MS100	100	Machine type for 1590 (except L, M & R) series	6-32 x ½" nickel plated
1590MS50BK	50	Black machine type for 1590 series	6-32 x ½"
1590MS50GY	50	Grey machine type for 1590 series	6-32 x ½"
1591MS100	100	Machine type for 1591 & 1598 series	M3 - 0.5 x 10mm
1591TS100	100	Self tapping type for 1591 styrene and 1551 series	#4 x 0.5" nickel plated
1591TS100BK	100	Black self tapping type for 1591 styrene and 1551 series	#4 x 0.5"
1593MS100	100	Self tapping, oval head for 1593 series	#4 x 0.625" (15.9mm)
1594MS100	100	Machine type for 1594,1599B, and 1592 series	M3 - 0.5 x 18mm
1594TS100	100	Self tapping for 1594 & 1599ES styrene series	#4 x 25.4mm (1")
1594WMS100	100	Machine type for 1594 watertight series & 1599E	M3 - 0.5 x 25mm
1595MS100	100	Machine type for 1595 series	M3 - 0.5 x 8mm
1598ATS100	100	Screws for stand-off bosses in 1595, 1598 & 1599 series	#6 x 1/4" (6.4mm)
1598TS100	100	Self tapping for 1598 styrene series	#4 x 5/8"
1599BTS100	100	Self tapping for 1599BS styrene series	#4 x ¾"
1599HMS100	100	Machine type for 1599H series	M3 - 0.5 x 28mm
1599HTS100	100	Self tapping for 1599HS styrene series	#4 x 1 5/16"

PLASTIC FLANGE KITS
(for our 1591 series)


OR
Flange kits mount to the rear of our 1591 series (using glue)...
Three sizes cover our entire 1591 series...
Flange kits can be screwed to the lid of our 1591 series...
Flange slots allow for easy cable tie hanging...

Molded in the same high quality, high strength, fire retardant ABS plastic (black only) as our 1591 series.

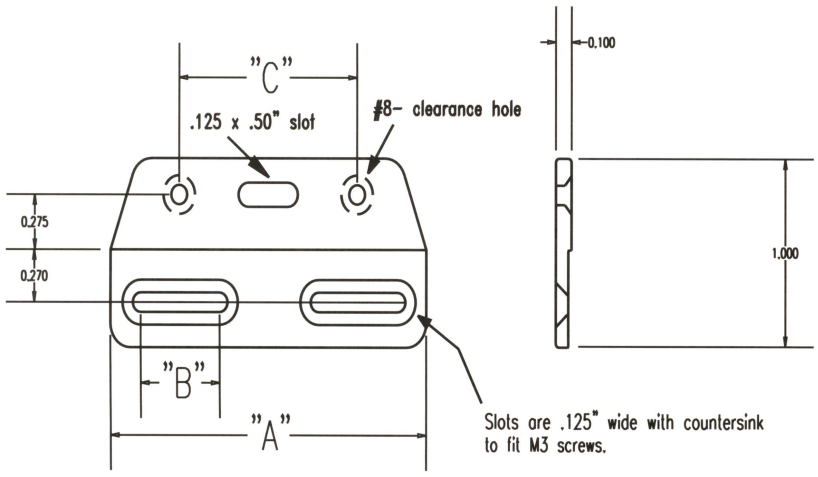
Used with Enclosure	Box mounted flange Part Number
1591L	1591F1BK-10
1591A	1591F1BK-10
1591B	1591F1BK-10
1591C	1591F1BK-10
1591D	1591F2BK-10
1591E	1591F3BK-10
1591G	1591F2BK-10
1591H	1591F1BK-10
1591S	1591F2BK-10
1591T	1591F2BK-10
1591U	1591F3BK-10
1591V	1591F3BK-10

SOLD IN PACKS OF 10

NOTE: When gluing flanges to ABS plastic boxes we recommend standard ABS cement. To glue flanges to our styrene enclosures we recommend a faster setting glue like Loctite's "Quick Tite"

Used with Enclosure	Lid mounted flange Part Number
1591L	1591F1BK-10
1591A	1591F1BK-10
1591B	1591F1BK-10
1591C	1591F2BK-10
1591D	1591F2BK-10
1591E	1591F3BK-10
1591G	1591F3BK-10
1591H	1591F2BK-10
1591S	1591F3BK-10
1591T	1591F2BK-10
1591U	1591F3BK-10
1591V	1591F3BK-10

SOLD IN PACKS OF 10



Part Number	Units	Dimensions A	B	C
1591F1BK-10	inch	2.2	.25	1.5
	mm	56	6.4	38
1591F2BK-10	inch	3.0	.26	2.0
	mm	76	6.6	51
1591F3BK-10	inch	4.5	.60	3.25
	mm	114	15	83

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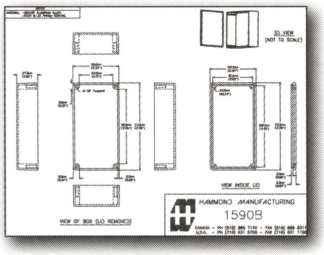
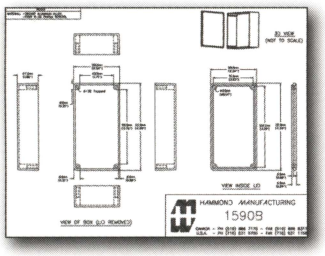
We have attempted to make this one of the easiest catalogs in the industry to use! By doing so, we decided not to print the part by part "detail" dimensions of each model. We are focusing on our website as ***THE*** central location for this type of information. Our goal, is that it will become one of your favorite tools when choosing enclosures, transformers & power bars! A summary of what is available on our site:



Individual part number dimension drawings in color downloadable in Adobe Reader PDF format (cross-platform document). Readable and printable in high resolution! If you don't have Adobe's Reader software we even supply a link to their site for a ***free*** download...



Individual part number dimension drawings in .dxf format for AutoCAD (Ver. 13) users...

AND

- Engineering bulletins...
- Trade show information & links...
- FAST e-mail links to our marketing department to order our other product catalogs...
- Links to other Hammond Manufacturing divisions...
- Distributor locations and links - we have teamed up with the best in the industry to bring you our products ***fast***. Many complete with "on-line" order entry...
- and much, much more....even a link to the fascinating Hammond "Museum of Radio"

Properties of Plastic Materials							
Property	Units	Test Method	ABS	ABS Flame Retardant	Polystyrene	Poly-carbonate	Fiber Reinforced Polyester
Mechanical Properties							
Tensile strength @ yield	PSI	ASTMD638	5890	5250	3200	10000	6000
Tensile elongation @ break	%	ASTMD638	22	15	50	100	0.5
Tensile modulus	PSI	ASTMD638	290,000	260,000	285,000	810,000	1,600,000
Flexural modulus	PSI	ASTMD790	290,000	260,000	285,000	810,000	1,600,000
Flexural Strength	PSI	ASTMD790	8200	6800	18100	17000	15000
Izon impact (1/8") - notched	FT LB/IN	ASTMD256	4.5	3.9	2.1	16	4.5
Specific gravity - solid	_	ASTMD792	1.04	1.22	1.17	1.2	1.95
Hardness, Rockwell R	R	ASTMD785	100	100	40	118	40 (Bercol Scale)
Thermal Properties							
Melt index	GM/10-MIN	ASTMD1288	3	4	3	7	-
Heat Deflection Temp							
@455 KPA	°F(C)	ASTMD648	205(96)	185(85)	188(87)	284(140)	392(200)
@1820 KPA	°F(C)	ASTMD648	181(83)	165(74)	-	268(131)	-
Vican softening temperature	°F(C)	ASTMD1525	217(103)	190(88)	203(95)	310(154)	-
Flame characteristics	-	UL94	HB	VO	HB	HB	VO
Thermal conductivity	W/M.C	ASTMC177	0.19	-	0.16	0.19	0.001
Electrical Properties							
Specific volume resistance	Ohm/cm	ASTMD257	10 E15	10 E13	10 E16	10 E16	10 E15
Dielectric strength	V/MIL	ASTMD149	140	400	215	160	400
Other Properties							
Water absorbtion	%	ASTMD570	0.3	-	0.1	0.15	0.16

* Material classified 94HB is combustible!
Values noted above are typical values for reference only. These values may vary between material manufacturers and within normal manufacturing tolerances.

Resistance of material to different media				
Material	Polystyrene	ABS	Flame Retard.ABS	Poly-carbonate
Gasoline	-	0	0	-
Diesel Oil	-	+	+	0
Sea Water	+	+	+	-
Hydrochloric Acid, 10%	+	+	0	+
Weak Alkaline	+	+	+	-
Strong Alkaline Solution	+	+	+	-
Atmospheric Influences	0	0	0	+
Lactic Acid	+	+	+	+
Acetone	-	-	-	-

Value at room temperature: + = stable, 0 = relatively stable, - = unstable

Simultaneous exposure to different media may alter the resistive properties of a material! To be safe, it is advisable to test the cases for sufficient resistance to the material under the condition of the specific application.

Flammability Rating

94 V-O
Test samples are extinguished within 5 seconds average time. None of the test samples burn longer than 10 seconds. No test samples emit burning particles.

94 V-1
Test samples are extinguished within 25 seconds average time. None of the test samples burn longer than 60 seconds. No test samples emit burning particles.

94 V-2
Similar to 94 V-1, except test samples emit burning particles during the test. The test sample is extinguished in all cases mentioned above. If the sample continues to burn after 25 seconds a horizontal test can be performed to meet classification.

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Degree of protection - "IP" Codes Information

Example:

IP 55

I.P. Protection Classification Degrees of contact prevention and guarding against foreign objects		
1st I.P. Digit	Designation	Explanation
0	No protection	No protection of personnel from direct contact with active or moving parts. No protection from access of solid foreign object.
1	Protection against large foreign bodies	Protection of personnel from accidental large area direct contact with active or internal moving parts (hand contact etc.) but no guard against intentional access to such parts. Protection from access of solid foreign object larger than 12 mm in diameter.
2	Protection against medium foreign bodies	Protection of personnel from finger contact with active or internal moving parts. Protection from access of solid foreign object larger than 12 mm in diameter.
3	Protection against small foreign bodies	Protection of personnel from touching active or internal moving parts with tools, wires or similar foreign objects thicker than 2.5 mm. Protection from access of solid foreign matter larger than 2.5 mm in diameter.
4	Protection against granular foreign bodies	Protection of personnel from touching active or internal moving parts with tools, wires or similar foreign objects thicker than 1 mm.
5	Protection from deposit of dust	Total protection of personnel from touching voltage carrying or internal moving parts. Protection from harmful deposit of dust. Access of dust is not completely prevented.
6	Protection from access of dust	Total protection of personnel from touching voltage carrying or internal moving parts. Protection from access of dust.

I.P. Protection Classification Degrees of water protection		
2nd I.P. Digit	Designation	Explanation
0	No protection	No special protection
1	Protectiion against water dripping vertically	Water drops falling vertically must not have any harmful effect.
2	Protection against water dripping off vertically	Water drops falling at any angle up to 15° from the vertical must not have any harmful effect.
3	Protection against spray water	Water drops falling at any angle up to 15° from the vertical must not have any harmful effect.
4	Protection against splash water	Water splashing against the object from all directions must not have any harmful effect.
5	Protection against jet water	A jet of water nozzled from all directions must not have any harmful effect.
6	Protection against flooding	Water from temporary flooding, such as heavy seas, must not enter in any harmful quantity.
7	Protection in dipped state	If the object is dipped into water under the defined conditions of pressure and time, water must not enter it in any harmful quantity.
8	Protection in submerged state	If the object is submerged in water, water must not enter in any harmful quantity.

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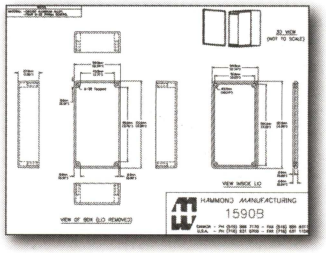

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